VERBUM

Life Style

Fun
Fashion
Games
Interactivities
Paintings
Telecom

VERBUM
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OF
PERSONAL
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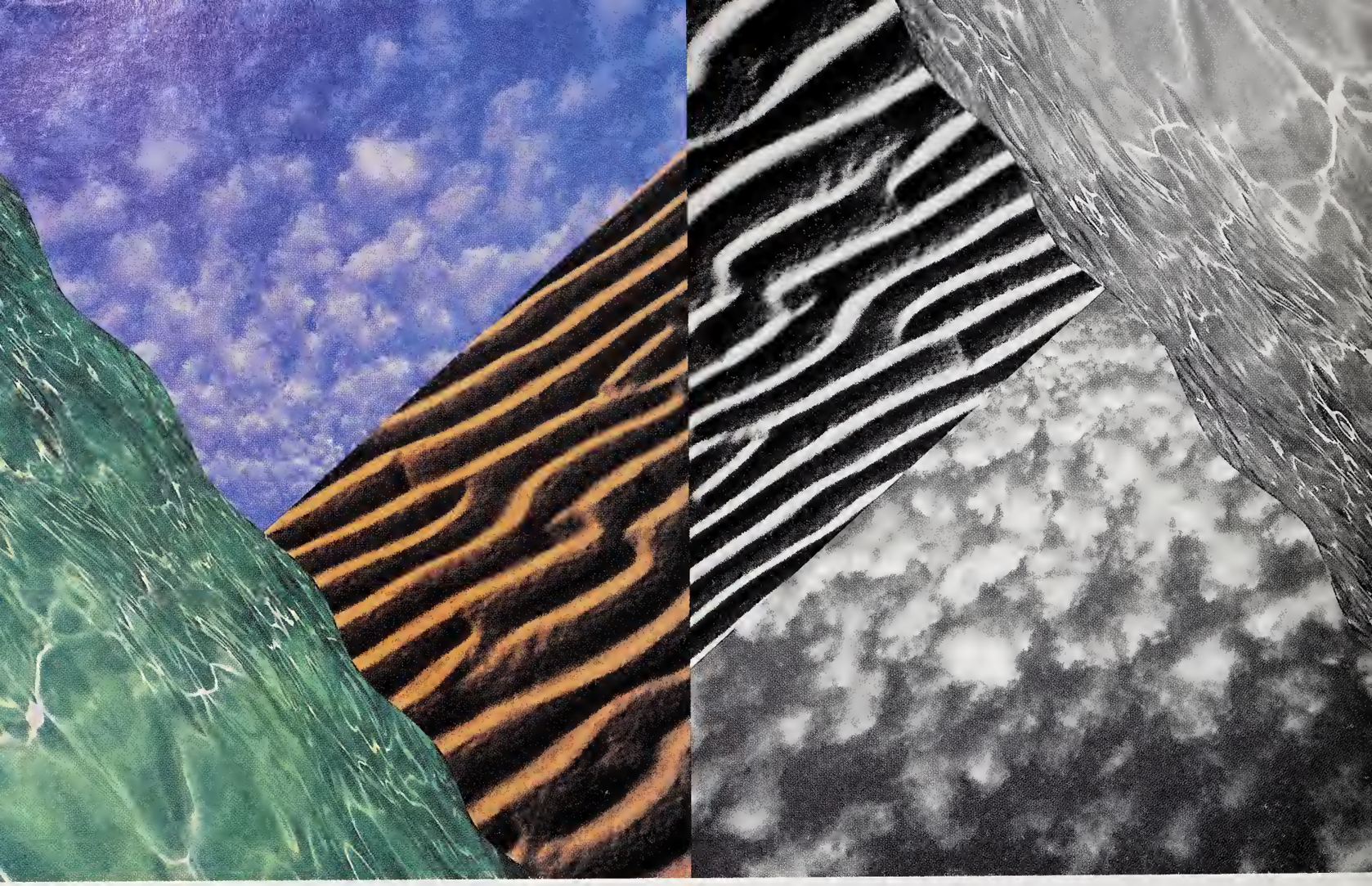

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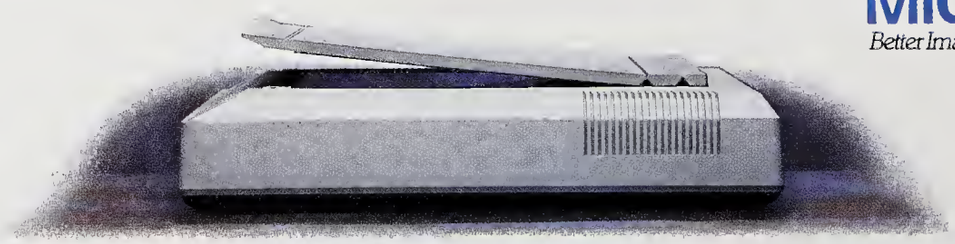

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BAAAD DOG

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About This Issue

Verbum 3.3 focuses on "Lifestyle," with an emphasis on human themes, on the personal aspect of personal computers. We're interested in how pc's are affecting the lifestyles of creative users, as well as how these artists are expressing lifestyle issues in their art.

Linnea Dayton's "Look and Feel" column takes a look at some computrogenic symptoms that go along with our lifestyle. In "Against the Grain" Steve Hannaford introduces us to Telecom, exploring the pros and cons of "Plugging In." This issue's "Gallery" emphasizes human forms and bitmapped compositions. "New Frontier Products" offers news on products for lifestyle enhancement as well as other cutting-edge product developments.

Features in this issue include Janet Ashford's "Should I Kick It?" — a very personal essay about her experiences working with the computer and the ways it affects her lifestyle. Our pc fashion design issue last summer was a hit (we've sold out our extra copies, and its cover won a prestigious magazine industry award). This year, Willard Van De Bogart again provides us with an insider's view of the industry with "Fashionable Computer Wear." Complementing Willard's piece, Linda Freedman's "Computer-Aided Fashion Design" opens our eyes to the ways fashion designers use the pc tools, and provides examples of their design innovations. We're pleased to have Brenda Laurel's "Dramatic Interaction," a thoughtful essay on the relationship between "virtual reality" (the Big Idea of the moment) and the dramatic arts. Games are the original virtual realities, and Russell Sipe shares the latest "simulations" with us in his "Whose Turn to Play God?" And in "Making Fun," Mark Stephen Pierce makes some observations on the game development process and the current and future State of the Game from the point of view of a video game designer.

Where Are We Going?

People sometimes ask how *Verbum* survives. Not so many ads. Not out very often. Very specialized market. Undercapitalized. Going into its *fourth* year.

Well, number one, we have loyal, enthusiastic subscribers. And we sell well on the newsstands. We maintain a very low overhead — the *Verbum* regulars still view it pretty much as a labor of love. In general, we haven't tried to get ahead of ourselves. We're still embry-

Michael Gosney Publisher/Editor
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John Odam Art Director
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Steve Hannaford Against the Grain Editor
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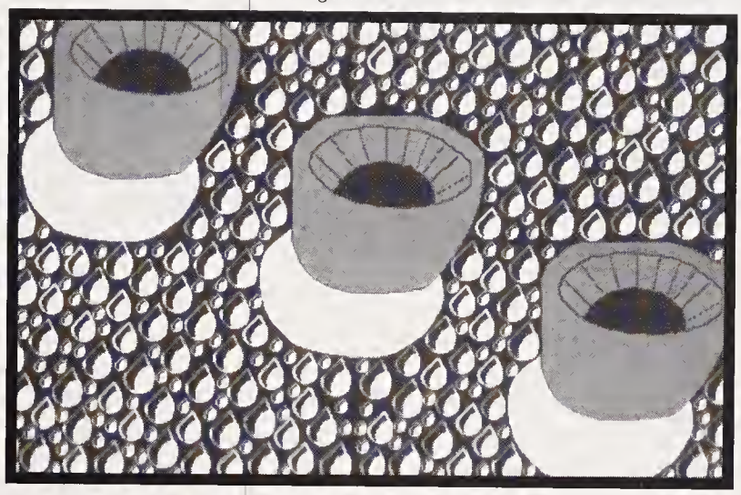

Eye Cup in a Sea of Tears
by Meredythe Dee

FRONTISPIECE
Baaad Dog is an Illustrator 88 creation by Max Seabaugh, whose work also appears in this issue's "Gallery."

COVER ART
Type comes to life in this Illustrator 88 piece by designer/illustrator/teacher David Smith, coauthor of *Expert Advisor: Adobe Illustrator*, recently published by Addison-Wesley. Smith's illustration was imported into Freehand, where standard *Verbum* cover elements were added.

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SUBMISSIONS: For information on how and what to submit and where to send it, see page 42.

MAX SEABAUGH

James Lovelock's "Gaia Hypothesis" suggests that the Earth is a conscious organism, regenerating, regulating and healing itself with goal-oriented intention,

evolving new senses and consciousness through its various life forms.

That they are meant to enhance intelligence and creativity in human beings

And, along with the equally pervasive (and ecological) communications technologies, connect and motivate the various factions of the human species in ways that promote synergy and new forms of social and spiritual evolution.

onic, ready to "sprout" into the '90s, tracking the growth and influence of the new media — through the hands and eyes of creative people. Maybe we don't want to grow *too* fast.

Where we're going is one thing; *how* we're going another. We're into the vision. The technology of the possible. Already charged with the creativity of brilliant engineers and marketers, these incredible tools are changing the way artists work, and often, for better or worse, how they live. And the work of these artists, particularly as we see interactive multimedia emerge over the next two years, is going to have an increasing impact on everyone. It's important that we understand the negatives, as well as the positive aspects of computers in art and communication. We're going to continue to address these issues in the pages of *Verbum*.

Imagine Tokyo '89

I'm writing this issue's "Intro" at the offices of Holonet, a graphic design agency specializing in pc technology, in Tokyo, Japan. Next week Imagine Tokyo '89 opens at the Sogetsu Kaikan Gallery here for two weeks, followed by two more weeks at the Konica Gallery, also in Tokyo. This exhibit is particularly exciting, because it brings the Imagine show into a truly international arena, and contains a remarkable new collection of work, over 100 new pieces, including some video and interactive works that will be presented on Macintosh systems. The event has generated a great deal of enthusiasm here, where many artists are already painting on their well-equipped NEC systems, and Macintosh is making waves in the design world.

MIKE SWARTZBECK

It has been particularly rewarding working with our coproducers here, Izuru Satsuki and Madoka Aikawa, principals in Holonet. They're doing a fantastic job of stimulating artists and corporations, and have brought together some of Japan's top illustrators, photographers and designers, often introducing these talented people to the Macintosh and other pc graphics systems. We plan to make Imagine Tokyo a recurring event, possibly holding it again next year. More on other Imagine shows next issue...

Health and Pc's

There's no question that pc's are coming back into the home. But compared to the original wave of Apple IIs and Commodore 64s, these are machines with power. Many have brought MS-DOS systems and Macs home. And quite a few are high-powered units, Mac IIs or well-equipped 386s. And the range of sophisticated programs with

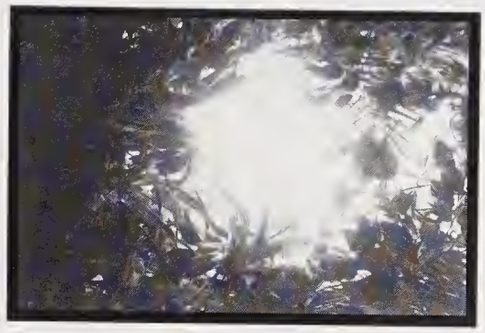
INTRO

engaging interfaces and complex functions is staggering. Many of our readers run their businesses from home, others have a machine at home for fun, or transport a system between home and office. It is, after all, great to be able to play with these desktop powerhouses on our own time, experimenting with new programs, customizing, tweaking, noodling, gaming. But it can be dangerous. It's tempting to keep playing, and *working* into the wee hours. To lose one's balance. To alienate mates. To forget about exercise. We can become human peripherals, responsible for unending digital housekeeping and system upgrading — instead of healthy users. Our goal should be to enjoy the creativity- and productivity-enhancing benefits of the pc in the context of a well-rounded lifestyle. "Moderation in all things" should apply to pc use just as it applies to drugs, alcohol, gambling or any other compulsion.

Our goal should be to enjoy the creativity- and productivity-enhancing benefits of the pc in the context of a well-rounded lifestyle.

There's no question that pcs are going to be increasingly a part of everyone's lifestyle, not just that of business or art users. Again, on the home front, it's inevitable that IBM and Apple will be pushing new CD-ROM-equipped machines for home use, specifically for entertainment and educational applications. And more people will thereby succumb to the lure of these silicon wonders, growing into power usage, diving into advanced games, hypermedia novels and interactive home entertainment centers. Let's make sure to blaze a trail of *healthy* computer usage, putting the pc in its place as but one aspect of a well-balanced lifestyle.

Personal computers are part of an evolutionary



RICHARD CARTER

Silicon and Nature

I have to admit, I'm a closet New Ager. Although I grew leery of the term in the late '70s when holistic trendsetters wore it out in Southern California, I do subscribe to many of the ideas that "New Age" philosophy encompasses. One of these is James Lovelock's "Gaia Hypothesis," which suggests that the Earth is a conscious organism, regenerating, regulating and healing itself with goal-oriented intention, and evolving new senses and consciousness through its various life forms. Following this paradigm, I feel that personal computers are part of an evolutionary trend. That they are meant to enhance intelligence and creativity in human beings, and, along with the equally pervasive communications technologies, connect and motivate the various factions of the human species in ways that promote synergy and new forms of social and spiritual evolution. And the more advanced computer designs, the fittest systems, survive and flourish. The evolution of silicon thinking machines will follow nature's organic models into increasingly subtle, convoluted, holographic forms.

With this in mind, I have always been interested in organic subjects for pc art. They have certainly been apparent in *Verbum* all along, and we designated "Nature and Ecology" as the theme for the Imagine Tokyo event. We have been surprised, by the way, at how many artists were working with these subjects anyway. Some of this stimulating new work will be published in coming issues.

Pc's and a concern for the environment seem to be connecting, at least in our experience here at *Verbum*. Against the background of 1989's resurgence of concern with ecological and environmental matters by governments (summit breakthroughs), corporations (Exxon and others), media (*Time* and *National Geographic* special issues) and the public, whether you're involved in art, desktop publishing or the personal computer industry, you're in a position to help. After all, we're talking *lifestyle* here, aren't we? And the essential platform for these exciting new lifestyles is Earth itself.

Thanks for listening. Write to us, please. Continue to show us what you've been doing — especially if it has to do with the politics of maintaining our planet platform. Tell us what you want from *Verbum*. Being an embryo of a magazine, we'd appreciate your help as we chart our evolution into the '90s.

Until next issue, be well!
Michael Gosney

MIKE SWARTZBECK

Pc's and a concern for the environment seem to be connecting

In Reality Built for Two, a virtual reality demo by VPL Research, two actors wearing DataGloves and EyePhones at separate microcomputers interact in the same virtual space.

PHOTO COURTESY OF VPL RESEARCH

Art or existential recursion? Virtual reality, like drama, can turn a transformational lens on human experience.

ON DRAMATIC INTERACTION

■ *by Brenda Laurel*

Brenda Laurel works as a consultant in research and design of interactive environments and interfaces and is editor of the forthcoming book, *The Art of Human-Computer Interface Design* (Addison-Wesley, Spring 1990). She holds a Ph.D. in Dramatic Theory and Criticism from Ohio State University.

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Fourteen years ago, when I was a graduate student in theater, I had a conversion experience. A friend of mine worked at a think-tank, where he was head of a new department in computer graphics and imaging. Late one night he asked me if I wanted to see a computer. We went through three security checks and up an elevator and through a maze of cubicles to a workstation where images were materializing on a little screen. I think it was Mars we were looking at. All I remember now was that I saw a portal to a new world, a million new worlds. I fell to my knees and begged, "Whatever I have to do, I have to get my head into this stuff."

Since the beginning of my involvement with the medium, I've been driven by one very rich metaphor. It's a fractal — the closer I look at it, the more I see.

Computers are theater. Interactive technology, like drama, provides a platform for representing coherent realities in which agents perform actions with cognitive, emotional and productive qualities.

Novices are often struck by the computers-as-theater metaphor when they first encounter the virtual world of a computer game. Designers incorporate theatrical jargon into their process — computer-generated "actors" receive "directions"; users "willingly suspend disbelief." But the comparison languishes once its superficial levels have been mined. The rich substrata of formal and productive knowledge that give the computers-as-theater metaphor its power remain unexplored. Yet millennia of dramatic theory and practice have been devoted to an end that is remarkably similar to that of human-computer interaction design; namely, creating artificial realities in which the potential for action is cognitively, emotionally and aesthetically enhanced.

A "scientific" approach still dominates the design of human-computer interaction. We count key presses, measure users' eye movement and analyze errors, drawing on such disciplines as cognitive psychology and ergonomics. More recently, artistic disciplines

like graphic design and storytelling have gained grudging acceptance, but contemporary design practice accommodates them as something fundamentally alien to the computer landscape. Art and science, soft guys and hard guys, those who dream and those who write code — these form the thesis and antithesis of the computer dialectic.

But art is lawful. This view turns the dialectic on its head. It is no accident that Aristotle, the originator of poetics, was also the progenitor of Western science. When we examine human-computer experience with the same rigor and logic, we can derive a set of principles — a poetics of interactive form — that can far surpass the piecemeal science that is currently the heart of human-computer interaction design.

Mimesis The root of the similarity between computer-based environments and art is the notion of mimesis: a representation whose object may be either real or imaginary. Computers blow a third dimension into the concept by adding interactivity — the idea that users can become co-creators, collaborating at the deepest levels in the shaping of a mimetic whole.

We are familiar with the idea of the computer as a medium-emulator. We paint with virtual brushes and make music with Macintoshes. We know that computers can mimic, expand and augment the concrete tools of art. But we are less aware of the profoundly mimetic nature of the technology that allows us, not only to emulate existing media, but to create wholly new ones.

And in order to do that, we have to decide what we're trying to create. Most of us begin by looking to the technology for answers. There it sits, the ultimate shape-shifter. What does one do with a shimmering blob of unlimited potential?

Big Ideas I got my first answer to that question from Alan Kay when I was working for him at the Atari Research lab. He said that the way to know where you're going is to generate the right Big Idea. This Big Idea must be powerful enough to capture all of your imagination, good enough to satiate you completely if you ever reach it. It must be impossible to reach from where you are now. When you've got the right Big Idea, then all that you think about and all that you do will align itself toward it, like magnetic particles, and you won't ever have to worry about doing anything irrelevant again.

The computer landscape is dotted with Big Ideas, like vortices, magnetizing thoughts and expressions. Some of them are quite familiar. Long ago and far away, in the land of punch cards and batch processes, there was the paradigm of conversationality. It was huge and impossible. Eventually it led to the command-line, tit-for-tat interface that we now find so unhip, but which has exponentially increased the user's experience of interactivity.

Sketchpad and Smalltalk were signposts to another Big Idea — the representation of manipulable objects. The object paradigm posits that we can emulate the physical properties of things — shape and mass and containerness — and that these virtual objects can provide a powerful metaphorical context for doing things with computers. Desktops, icons, files and folders all materialized in this magnetic field.

Virtual Reality The Big Idea of the moment is undoubtedly the notion of virtual reality. From Mad King Ludwig's grottos to Disneyland to computer games, virtual realities have been lurking in our culture for a very long time. Now, at the intersection of fantasy (Vinge's *True Names*, Gibson's *Neuromancer*) and technology (the NASA VIEW system, Lanier's Reality Built for Two), the paradigm has finally coalesced. The Cyberia team at Autodesk describe it as diving through the screen into the world inside the computer. Finally, no more iconic representations, no more metaphorical indirection. We can treat the virtual world just like it's real. Alternate reality in a box.

So what are we going to do when we get there?

In the NASA system, you can zoom through a model of the space shuttle or climb inside a robot. The Autodesk team envisions CAD workers walking around inside their own designs. In Lanier's version, two people can virtually inhabit the same virtual space and play virtual ball. The entertainment industry will undoubtedly bring us countless sports simulations and virtual travelogues. But I keep seeing this image, like something out of a sad surrealist movie — a bunch of figures, wandering around in a lonely masquerade, occasionally tossing a ball. After the first techno-rush, you're going to want to talk to somebody. And maybe not just somebody hooked into another terminal. A virtual somebody. Marilyn Monroe, Einstein, Captain James T. Kirk.

I predict that, just as with computer games, we'll rip through the repertoire of imitations of games and physical activities, improving the technology and planting little signposts of convention, and then we'll start to hunger for more complex interactions.

The IF Paradigm And that's where this all hooks back into the theatrical metaphor. In the Poetics, Aristotle observed that humans are hard-wired to learn, that they enjoy it tremendously, and that their favorite way of doing it is through imitation — acting things out. This is the impulse behind both theater and computer games. The Big Idea is a vision of an experience where I can play make-believe, and where the world automagically pushes back. It's like cowboys and Indians or theatrical improvisation, only better — because half of my brain doesn't have to be concentrating on making an interesting plot. I just get to be in this other world, first-person, acting as myself or Captain Kirk or some other character altogether, and I get to see what would happen IF.

The heart of the Interactive Fantasy paradigm is the ability to produce robust dramatic interaction through manipulation of the same formal and structural dynamics that are present in any good play. The system would behave very much like a human playwright who is operating with a bizarre constraint: one of the characters is a real guy, wandering around in your study, injecting lines and doing things that you have to work into your script. By embodying dramatic rules and heuristics in a computer-based system, dramatic action could be formulated in real time, shaping the responses of the virtual world and characters according to the choices and actions of the user.

The impulse to create an "interactive fantasy machine" is only the most recent manifestation of the age-old desire to make our fantasies palpable — our insatiable need to exercise our imagination, judgment and spirit in worlds, situations and personae that are different from those of our everyday lives. Perhaps the most important feature of human intelligence is the ability to internalize the process of trial and error. When a person considers how to climb a tree, imagination serves as a laboratory for virtual experiments in physics, biomechanics and kinesiology. In matters of justice, art or philosophy, imagination is the laboratory of the spirit.

It is not enough to imitate life. Drama presents a methodology for designing worlds that are predisposed to enable significant and arresting kinds of actions — where characters make choices with clear causal connections to outcomes, where larger forces like ethics, fate or serendipity form constellations of meaning that are only rarely afforded by the real world. Dramatically constructed worlds are controlled experiments, where the irrelevant is pruned away and the bare bones of human choice and situation are revealed through significant action. The predispositions of such worlds are embodied in the traits of their characters and the array of situations and forces embedded in their contexts. If we can make such worlds interactive, where a user's choices and actions can flow through the dramatic lens, then we will enable an exercise of the imagination, intellect and spirit that is of an entirely new order. ●

AGAINST THE GRAIN

■ *by Steve Hannaford*

Every week I talk to a number of the computer-based designers and artists, along with participants in electronic publishing. One of the most astonishing things I run into is a lack of connectedness to the services available to computer users through telecommunications. There's a wealth of resources available to all computer users through the phone lines, especially for writers, designers, and publishers. But first you gotta get a modem.

Modems are those little bricklike squeakers that plug into your computer and your phone line, and allow you to make contact through your computer (squeak, chirp, buzz) with the outside world.

Until a couple of years ago, I looked on modems with utter dread. I had been unwillingly involved in a number of attempts to connect two computers through modems, and each experience was utterly frustrating. First, there was the lack of simple, sane standards. Second, there were the mysterious sets of variables: baud rate, parity, XON-XOFF settings and so on.

Third, and most frustrating, was the synchronous nature of modem communications. In other words, your computer had to be waiting for my computer to dial up so they could chirp happily away, back and forth. In the usual situation where there were single phone lines on both ends, you were likely to pick up the receiver on the phoneset and get an earful of clicks and hisses. So, after you set the computer to receive, I would call you to discuss the problem and get clicks and hisses in return. After a few such mistries we would finally get coordinated, only to discover that what my computer was sending was being interpreted as gibberish by yours. Fix a few variables and try again. After numerous (human) phone conversations, success was gratifying, but not guaranteed. Finally, it occurred to the folks who sell communications to computer users that (a) fixed standards in hardware were needed; (b) since users are not software engineers, most of the communications factors should be handled automatically or as nearly automatically as possible; and (c) most modem communications should not have to be synchronized.

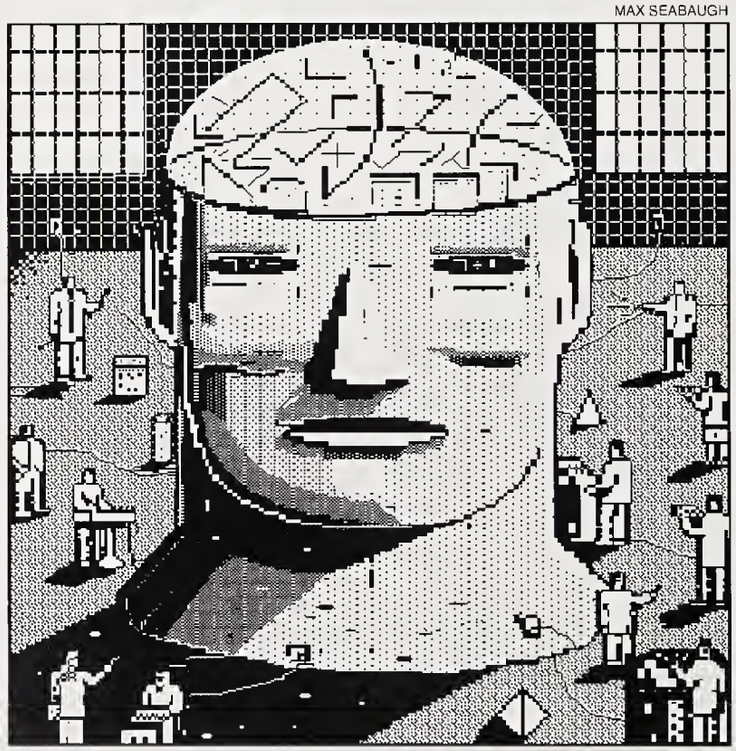
Modems are pretty standard now, both in terms of operation and performance. Some modems are faster (have higher baud rates) than others, but faster modems can work with slower ones if necessary. There still exist a number of protocols for sending information (for example, Xmodem, Ymodem, Zmodem), and that remains a problem. But even here, most programs give you a choice so you won't be locked out. Likewise, most (but not all) modem communications follow similar rules as to such variables as parity and stop bits, a welcome relief. Some communications programs are smart enough to "poll" for a correct baud rate — that is, try several baud rates until a clear transmission comes through.

Most important of all is the concept of communicating through a third-party service, an online service that's ready 24 hours a day to upload and download information. Doing this takes away the need to "roger-wilco!" with another individual. Modem communication becomes more like sending a letter than making a phone call. The recipient doesn't have to be "at home" when you start the communication, and you don't have to wait at home for the answer.

Moreover, fast modems have become reasonably cheap. You can get a 2400 baud modem, moderately speedy, for under $200. Given what can be done with it, this is a real bargain.

But telling you all this is like informing you that ski-lifts have improved skiing immensely. No more herringboning up the hill for an hour in order to get a 5-minute downhill ride! The question is why go up the hill in the first place?

MAX SEABAUGH



PLUGGING IN

Why Connect?

There are three excellent reasons for getting connected. The first one is simply utilitarian, the higher-tech equivalent of having a mailing address or getting a telephone. Having an address on one or several networks is a great boon for all kinds of activities. It allows you to exchange information with others easily and cheaply through electronic mail.

Electronic mail has several big advantages over telephone communications, as consultant and designer John Tomeny of Hanover, New Hampshire points out. In an offshoot from his design business, Tomeny has taken on an organizing role for a medical society whose "members are constantly in contact with each other using electronic mail. As executive director, I'm in touch with the members of our board almost daily through electronic mail."

Why not use a telephone, I asked Tomeny? "It's a waste of time and it's too expensive. You get someone on the telephone and they gab and waste your day. If you call them, two times out of three, they're not in their office, and when they call back, you're not in your office." As Tomeny pointed out, studies show that the average business person spends six years of his or her career returning phone calls, playing telephone tag. "Using telecommunications eliminates telephone tag. And it makes the messages more accurate, and more to the point."

Tomeny is adamant about the uses of electronic mail for all professions. "It's important for anyone in any industry who wants to have communication with peers around the country." He sees an increasing use in medical research, where specialists and researchers at the forefront "are in constant contact, communicating with each other daily through electronic mail."

File Transfer

Even more important than simple mail service in the design and publications trades is the transfer of files from one user to another. A typical example of the telecommunication of design jobs is recounted by designer Erik Murphy of Keene, New Hampshire. "I did a stuff card for Lotus magazine (published in Cambridge, Massachusetts). They wrote the copy, plugged in some of the dimensions of an average stuff card, gave me an idea of what they

wanted for typeface — basic, basic information. They telecommunicated that file up to me. I brought it up on my system, worked on it, put some finesse into it, cleaned up all their fragments and made the work into what I considered ready to go to repro."

Then Murphy sent the file back to them, again over the wires. "I put them in charge of their own last-minute details — changing a code here or a line break there, deciding that they liked ragged right instead of justified text. When they were pleased, they telecommunicated the file back, I looked it over and made sure there weren't any glitches and proofed it again, and then I took responsibility for sending (telecommunicating) it to the service bureau, having film run, looking at the proof and Fed-Exing all the materials back to them."

The remarkable point of the story is the length of time it took — three days, including all revisions and reviews. In this case, the work was all done on the Macintosh, and maintaining similar systems was the key. It can all work, insists Murphy, "as long as the client is compatible (they have to have your versions of programs, screen fonts and so on)."

The increasing use of telecommunications has opened up a set of possibilities for proofing and revision that has never existed before. This magazine, for example, is edited and produced in the opposite corner of the country from where I live. The editor and I talk over the phone, and whatever questions we can't resolve that way (both of us looking at the same file on our monitors as we talk), we resolve by sending rewrites or additions over MCI Mail. I regularly use MCI Mail, which allows me through a program called Desktop Express to send diagrams or complete word processing files in any Macintosh format. And I don't ever lick a stamp (except to send invoices, which I don't trust to the electronic medium for some reason).

Tomeny uses the same publishing procedure. "I'm publishing a newsletter. Almost all the text is typed in on a PC terminal in Dallas, Texas. The woman who types it, E-mails it to me. I look it over, edit it and send it back to her for proofing. If she wants to make any final changes, she sends it back to me again."

And as this technology evolves, notes designer Andrew Lovatt of Philadelphia, it's becoming more a requirement and less an alternative. "Clients are starting to demand that graphic designers get into telecommunications. Corporate clients want to be able to do most of the work over the phone lines. The clients themselves have to be up on that, of course, and a lot of companies are."

Based on the theory that work should be able to be done from anywhere with this arrangement, Lovatt contemplates working from a house in a favorite Greek village, at least if the rural telephone system in Greece ever gets into better shape. ("You don't want to lose a PageMaker transmission every time a crow lands on the line.") My advice to him is not to spill any retsina on his diskettes — it can gum up the drives horribly!

As Lovatt sees it, "The big future is programs that are better suited for sending proofs back and forth, with mark-ups and suggested corrections." We're just beginning to see the evolution of such "groupware" — the electronic equivalent of marginal jottings or Post-its on your files. Once such software fully emerges, electronic editing will be a requirement, not an option.

The average business person spends six years of his or her career returning phone calls, playing telephone tag.

Information

The last and best reason for getting connected is information. You may know that you can reserve flights, check stock prices, and look at online encyclopedias through most of the available online services. These services include CompuServe, Genie and Connect (until recently called MacNet) among others. Perhaps the first place to look is your local computer society, which often has its own bulletin board. Likewise, professional societies are starting to create their own online services for the benefit of their members. And your local service bureau may have a bulletin board available, with some useful screen fonts and other services.

You can get a whole set of amazingly useful items from bulletin boards. Press releases from computer companies, technical descriptions of EPSF files and the locations and phone numbers of Linotype service bureaus are all available on the CompuServe online service, along with public domain software and shareware.

A representative fund of information for users of PageMaker and other Aldus products is the Aldus forum on CompuServe. Here, on a typical day, users discuss bugs and workarounds for PageMaker on the Mac or PC; suggest improvements in the products to the system operator; tell others how to do a particular task (such as creating drop caps) not directly supported by the programs; discuss related issues such as available PostScript fonts, hardware, output services, color output and so on; discuss broader issues (font aesthetics, designer trade practices or fair prices, for example); and discuss the peculiarities of American versus British punctuation, good games to play on the computer or recent travels. A knowledgeable and helpful Aldus rep runs the board, but the real spice is supplied by the dozens of engaged pros who have run into all the problems and have strong opinions, often opposed to one another. On this forum, there is also good support for beginners, who are not belittled for their hesitatingly asked "dumb" questions, some of which are kindly answered for the umpteenth time. And not everyone has to participate. Many busy people simply "lurk" in the background, collecting and reading the often instructive conversations of others.

Tomeny, an active participant on an Aldus users' forum on CompuServe is eloquent on its usefulness. "Some of the comments I've had from people on the Aldus forum have astonished me. Someone will call up on the board and leave this message - 'I have this terrible problem . . . (and so on). Help!' I or someone else will answer: 'Do this and this and this.' Before you know it, three or four other people have offered suggestions. The person who asked the question has now received hundreds of dollars worth of consulting assistance, for the cost of an online connection. And those who were monitoring the situation all of a sudden have acquired some new information, and their jobs have just become easier.

As an example, Tomeny cites a designer who was having problems with wrapping text around text blocks in PageMaker. She left a message and got three full responses. "I showed her step-by-step how to change the text into a graphic object using the Scrapbook. She was thrilled with the advice, tried it and liked it. And someone else who was lurking on the system left me a message to explain to me that, just by reading my comments, she had saved so many hours that, over the next few months alone, it would be worth thousands of dollars on client projects."

Does all this cost a fortune? Well, it can be costly in both time and money, because these services can be addictive. But there are programs that automate the process and cut down on your connect time. And the benefits can be very substantial. The discussions and exchanges with colleagues make it all worthwhile. Modems and online services connect those of us who stare at our computer screens all day (and/or night) and reassure us that we're not alone, that the problems we encounter have been encountered and solved by others.

Genie
GE Information Services
401 N. Washington Street
Rockville, MD 20850
800-638-9636

Connect Professional Information Network
Connect, Inc.
10101 Bubb Road
Cupertino, CA 95014
408-973-0110

CompuServe
Subscription kits available at
B. Dalton Software Etc. or Radio Shack
or by calling 800-848-8199

MCI Mail
1150 17th Street, N.W.
8th Floor
Washington, DC 210036
800-444-6245

GALLERY

LIFESTYLE

1

1. Boys
2. Pre-Born
3. Runt

2

Jack Davis experiments with the features of many software packages used in combination. The images here from the Self-Portrait Series, are scans and drawn objects that were digitally modified and then collaged together. Among the hardware and software used are the Sharp JX450 scanner and a Macintosh II with PhotoMac and Studio 8.

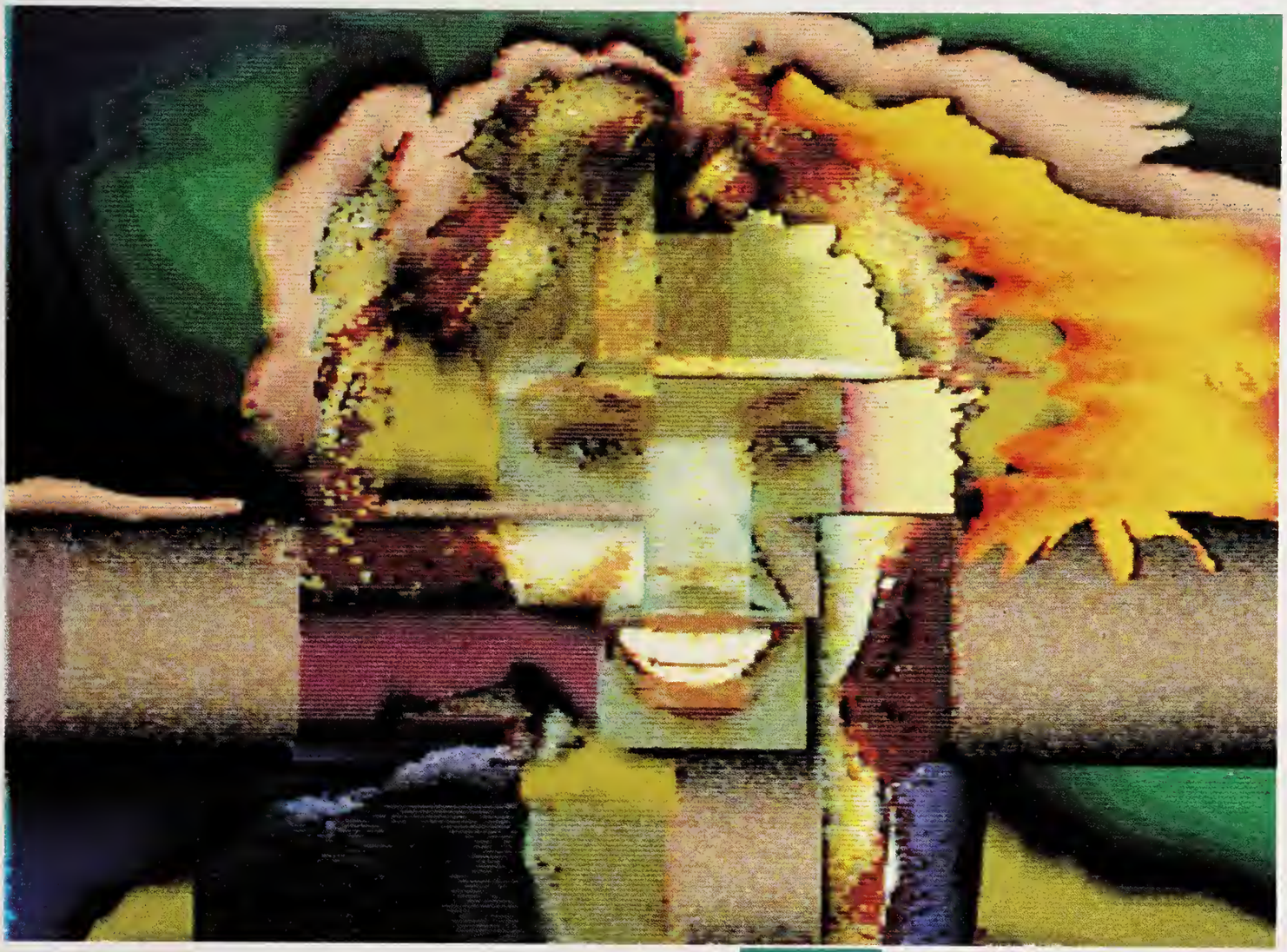
3

4

4. Manhattan
5. Futuristic Foods

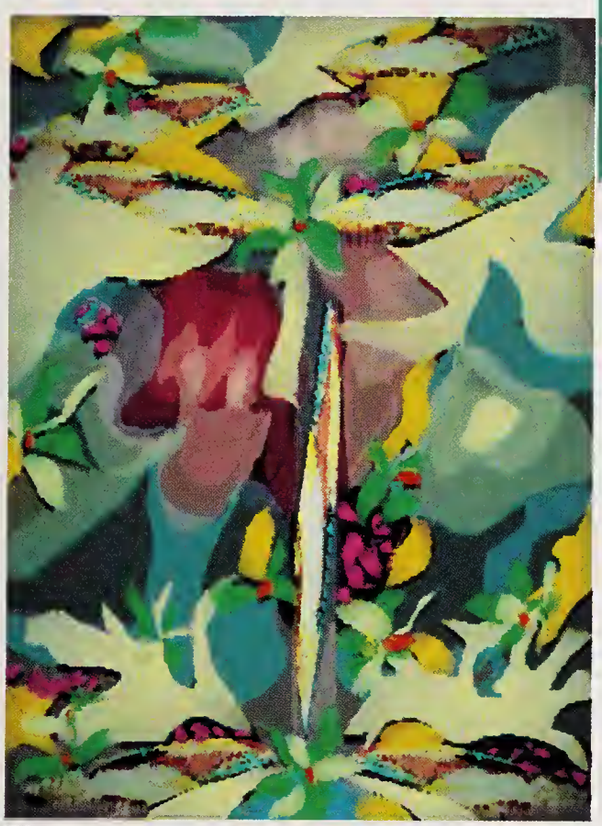
5

Pamela Hobbs learned the fundamentals of illustrative techniques in her native England before studying installation art, photography, painting and visual communications at the North Carolina School of the Arts and Maryland Institute College of Art. Caught up in a whirlwind of electronic technology that includes Macintosh computers, PageMaker, Adobe Illustrator, MacDraft, video imagery, animation, Lightspeed and Targa 16 systems, she works freelance doing editorial works for such clients as *Psychology Today*, *The Village Voice*, *Spin* and MTV, and teaching Macintosh and PC workshops at the School of Visual Arts in New York City. Manhattan was produced on a Lightspeed system, and Futuristic Foods was produced with a Targa 16 as a promotional poster for Whittle Communications under the art direction of Bruno Nesci.



6

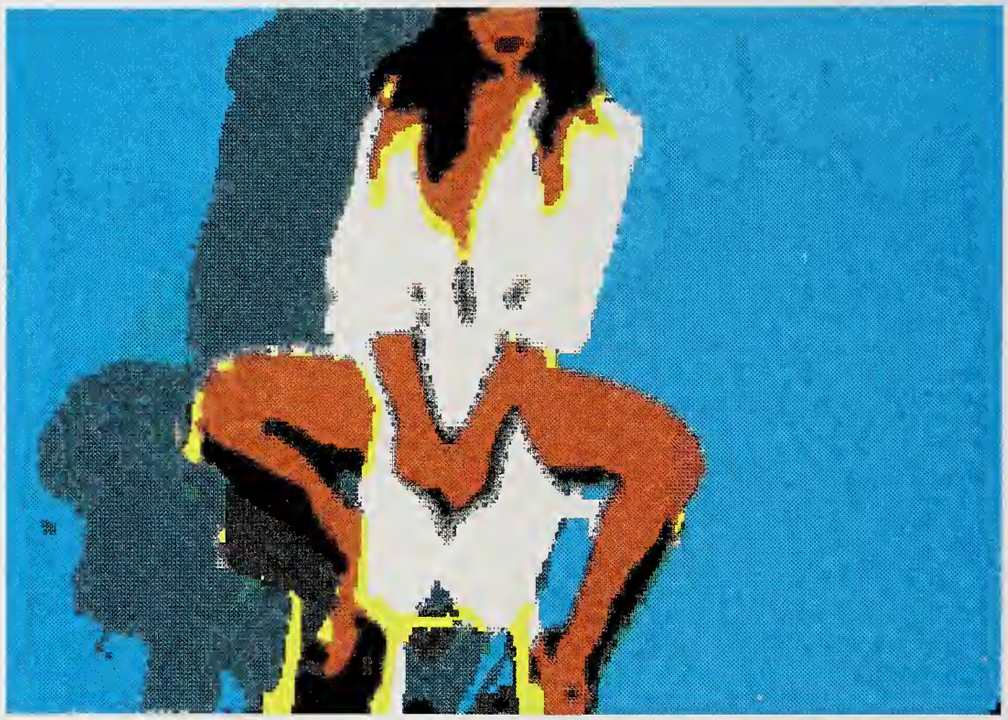
6. Smile
7. Stamp Falls, 1988



7

Lawrence Payne uses an Amiga 1000 and DigiPaint software to produce his one-of-a-kind works, which are imaged on film as screen shots and then made into Cibachrome prints or output on a Canon color laser printer.

Mohamad A. Suleiman, a computer consultant in Dallas, Texas, holds a degree in computer science with a minor in art with an emphasis in figure drawing. He uses Deluxe Paint II on an Amiga 2000 to produce his artwork, which is then output on a Xerox 4020 inkjet color printer.



8

8. India
9. Woman in Red

9

10. Double Women No. 2
11. Self Image #1

10

David S. Brown, Jr. uses the computer to create corporate slide presentations, computer animation sequences and print graphics. In the fine art arena David used a Mac II and PixelPaint to create these "electronic paintings." Photos were scanned at 300 dpi with a Dest PC Scan Plus, saved as TIFFs in ImageStudio, where the gray scale was modified, and then cut and pasted into PixelPaint for composing and painting.

11

Max Seabaugh uses a full range of media from traditional to electronic to produce illustrations and graphic design for a client list that includes Apple Computer, Esprit and Letraset. Space Flower and Baaaad Cat were created in Adobe Illustrator 88.

12

13

12 Space Flower
13 Baaaad Cat

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MASS microsystems

■ *by Janet Ashford*

Palm Evening
Janet Ashford
The black-and-white photo was digitized with an Apple flatbed scanner, silhouetted in ImageStudio and imported into FreeHand, where the other elements were created with the drawing tools.

Janet Ashford is a graphic designer, writer and editor who lives and works in Solana Beach, California. She is the author of the *Whole Birth Catalog* and coauthor of the forthcoming *Verbum Book of PostScript Illustration*.

SHOULD I KICK IT?

I've been using a Macintosh for three years now, mainly for writing and graphic design. It's a wonderful machine. I wouldn't want to live without it. I feel hopelessly superior to people who are afraid of computers or think they're "dehumanizing." Some writers will not use a word processor as a matter of principle. But they'll use a typewriter rather than write in longhand. Or use a pencil rather than etch in clay tablets. A tool is a tool.

I'm not a "computer person" though. I don't write programs, and I know very little about how the computer works. I find myself intimately connected with a machine that presents a very intuitive and usable "face" but that is ultimately mysterious. Computers depend on users who are tied to much older ways of thinking and working.

Historical Tools

At home I engage in a variety of tasks, from many periods of history. Some use my own body (eating, walking, breastfeeding). Others require particular tools. Of the tool-based skills, the older ones (drawing, knitting, sewing, playing the violin) involve tools that are quite transparent. The needle piercing the cloth, dragging the thread with it; the bow scraping sound from the strings — these are immediately understandable. My newer tools are more obscure: the VCR, the video camera, the computer. I know vaguely how these things work, and I believe the principles involved are not beyond the reach of my understanding in theory. But in practice these technologies are quite opaque. They are boxes whose works are hidden away inside.

I don't think many of us understand the new technologies around us, though we plunge ahead and use the machines anyway. But despite our being baffled sometimes, there is often a charming interplay between technologies of different historical periods, especially when you use many in one day. Each activity requires its own patterns of thought or action. And these can often be overlaid on each other with interesting results. Sometimes the ways we work with older tools can be applied nicely to computers.

Intentional Error

Take knitting as an example. Knitting patterns are made up of two basic stitches — a knit and a purl. This binary system gives rise to thousands of complex patterns, especially when color is also added as a variable. One often makes a mistake in following a complicated knitting pattern, sometimes creating an interesting new pattern, which can be claimed as intentional. I'm convinced that this is how the Irish fisherman's sweater evolved — through a series of mistakes. I feel very akin to the generations of Irish fishermen's wives whenever I make a mistake in knitting, and also to the nomad women who always include at least one mistake in their beautiful rugs "because only God can make something perfect." But really, only people can make something perfect, if perfection means regular and uniform. The works of nature are flawed and asymmetrical; dynamic, full of movement, error and beauty.

Some software applications work well with the human tendency to make mistakes and find the results pleasing. Perfectly geometrical patterns can be created with illustration software, then altered with strategically placed errors or hand-drawn elements. Mistakes can generate an attractive new pattern, which can be claimed as intentional. A wrong note can suddenly become a bittersweet dissonance. Without error there would be no tension and no opportunity for resolution.

Planned Versus Spontaneous

Computers can also accommodate different work styles, fitting those who like to plan ahead as well as those who work in "real time." When I was younger and beginning to live on my own, I studied recipes and made shopping lists based on the necessary ingredients. Then I met a woman who made no lists, but bought whatever was freshest and cheapest. Living with her, I learned to create meals out of whatever happened to be available. The computer accommodates both styles. You can calculate things in advance and specify precise coordinates and angles. Or you can use the mouse to fiddle and twist and turn until things "taste" right.

There is a great pleasure in all of this. When the computer and I are cruising along well together, I can create good work with amazingly little frustration. Obviously, the computer's interface has been designed by people who understand how both computers and people work. The Mac's interface is a triumph of user friendliness. It almost serves as a proof of the unprovable philosophical question, do other minds exist? I'm continually delighted to find that my guesses about how an application should work have been anticipated and accommodated. But our idylls are sometimes shattered by hard drive crashes, system errors or other forms of sheer orneriness that are enigmatic to say the least. Lacking a knowledge of hardware, we are thrown back upon conceptual frameworks and emotional responses from the 19th century or earlier.

Should I Kick It?

One question that arises almost immediately is "Should I kick it?" It's sometimes helpful to kick a machine that won't work, as it may be helpful to kick an animal that won't work. But though animal handling is not among the historical skills I've acquired, I suspect that careful training and realistic expectations might eliminate the need for this dubious practice. Actually, I suppose people resort to kicking when the person, animal or thing in question has become a black box; that is, when its internal processes are seen as mysterious, alien, perhaps even evil. When a man abuses his wife, to take a serious example, he has failed to understand that women and men are much more alike than they are different (lack of proper training) and that women should not be expected to serve as scapegoats for the unmet psychological needs and aggressions of men (lack of realistic expectations). But what about computers? Are computers and people more alike than they are different? Can computers be expected to meet all our needs? What sort of training and expectations would be appropriate?

Stages of Grief

A computer friend who often gets distress calls when systems crash finds that people go through some typical stages of grief reaction:

Shock — "What happened?!"

Denial — "I didn't crash!"

Anger — "God damn it — it crashed!"

Bargaining — "From now on I promise to *always* back up all my work on floppies, if only you (who?) will give me back the work I did today."

Resignation — "I'm going to have to do that whole eight-hour layout again."

Transcendence — "Someday this experience will be a painful but enriching thread in the tapestry of my life. Meanwhile, I may join a rock-and-roll band."

When my hard drive crashes I try to remain calm. If I've been working fast, trying to get a big job done, I know I have to shift gears. It's impossible to read a manual when you're frustrated, upset and in a hurry. It just doesn't work. If you're frustrated, upset and in a hurry to cross the street with a dawdling child, you can yell "Come on!" But this historical technique (yelling, akin to kicking) does not work with computers. I find that in order to get a good result I must practice one of the last stages of the grief process first; that is, resignation. I say to myself, "You're not going to be able to finish this job today." I take a deep breath and let it out slowly. I close my eyes. Phrases from the *I Ching* float through my mind — "You are sincere and are being obstructed. A cautious halt halfway brings good fortune. Perseverance furthers." I practice detachment.

The stove booted instantly, bursting flame onto the bottom of the frying pan.

The technique is similar to that of breastfeeding a fussy baby who is impatiently awaiting the let-down response. The milk will come down only when the hormone levels stimulated by the baby's sucking reach a critical level in the blood. This process cannot be forced. One must sometimes give up control and expectation and let things be as they will be. (One must also sometimes drink an entire bottle of imported dark beer). Only then will the desired result appear. It's like love. You have to give up wanting it before it will come. Does any of this make any difference to the computer? Does the computer know whether you are upset or not? It's hard to tell.

The Universe Is Gone

Last week I used my new Macintosh IIcx all day. In the afternoon I shut down and took a break to nurse my baby. Around five I turned the machine back on, but the system failed to boot! Nothing appeared on the screen but a flashing question mark. This can't be true. My God, it is true! I just spent almost seven thousand dollars on this machine, and it's crashing already? I've done a whole day's worth of work that is not backed up. I'm going to have to do all that work over. I will never shut down again without putting everything on a floppy!

I took a deep breath. I consulted the manual. I ran all the trouble-shooting routines. Nothing worked. The internal hard drive would not appear on the desktop. It simply didn't exist! It had been an entire universe of software and jobs and documents. It was filled with gorgeous complexity and capability and color. It didn't exist anymore. It was like waking up and finding that you're still living at home with your parents and have no other life. I called my friend John.

"You sound very calm," he said. "I know people who become hysterical over something like this. I'm with a client now. Call me back in an hour."

I made dinner. I enjoyed the feel of the 19th century–based carbon steel knife in my hand. It cut cleanly and reliably through layers of peppers, onions and mushrooms. The stove booted instantly, bursting flame onto the bottom of the frying pan. I ate the food slowly. I sat outside and watched the sky change color in the west, above the strip of blue ocean. It was a perfectly graduated fill, from turquoise to pink, at high resolution with no banding.

I called John again.

"Turn your unit on and we'll see what we can do," he said. I turned it on. It booted to the familiar desktop! The universe was restored. Amazing!

Continued on page 25

New Frontier Products

LifeStyling

■ *by Paul Goethel*

LIFESTYLE ENHANCERS

MicroTV (for the Mac)
Its manufacturers are calling it "cable-ready TV on a card." The technology behind MicroTV will allow Mac users to watch television or live-action video from any other source in a window on their computer screens, while simultaneously running other applications. Initial implementations will offer only a small viewing window -- 128 by 96 pixels, or about 1.75 by 1.3 inches — and will not display colors. A Mac II version due to go on sale in October, however, will show 128 shades of gray. An enhanced version, MicroTV Professional, should ship in December and support a larger video window as well as FM radio reception; a color version is expected by sometime next year. The outstanding feature of MicroTV may well be its price, a fraction of those charged by other companies with digitized video products. $395 for Mac IIs; $295 for the SE. Aapps Corp., 110 Pioneer Way, Mountain View, CA 94041, 415-961-4033.

WristMac
A database disguised as jewelry, WristMac is a high-quality digital watch that connects with a Mac computer and can upload and download 80 watch-pages of alarms, schedules, phone numbers and custom text. Each file can contain up to 79 entries consisting of two 12-character lines each, with a total of 80 entries on the watch. The watch connects to a Mac by means of a small detachable clip and a cable that fits either of the Mac's serial ports. It operates as a HyperCard stack that provides a complete on-screen simulation of the watch so the user can enter and manipulate information. $225. Ex Machina, Inc., 45 East 89th Street, New York, NY 10128, 212-831-3142.

Treacyfaces (for the Mac)
"Original" is the big point Treacyfaces wants to make with its collection of font designs. According to the manufacturer, these fonts are created to appeal to the most demanding type users, and stand apart as separate and distinct from other libraries of PostScript-compatible parity font products. One big plus of this approach, the company hopes, is that by stepping away from the crowd, the Treacyfaces collection will insulate itself from the inevitable price wars all the "me-toos" must certainly face. From its unprecedented 750+ kerning pairs per weight, to the standard fraction elements that allow the user to quickly set down to /32, to the inclusive Illustrator-compatible "artwork" files that let users access the control points (beneficial to both graphic designers and the signage industry because of compatibility with HP/GL or DM/PL vinyl plotters through the Taylored Graphics utility called QuickPlot.PS), Treacyfaces aims high to set PostScript-compatible font standards. Treacyfaces, 111 Sibley Avenue, Second Floor, Ardmore, PA 19003, 215-896-0860.
This Panel was set in 8 point TreacyFaces Forever

Outline Fonts, Apple Core System 7.0 (for the Mac SE/30, IIcx and IIx)
This next evolutionary step in the advance of Apple systems technology will, among other features, create sharp text on any screen or printer at any size. While current bitmapped fonts are limited in their ability to display or print any point size at any resolution, Core 7.0 will offer Mac users full functionality on existing and future Macintosh systems; most software applications will take advantage of the new fonts with little or no revision. Combined with the new Layout Manager, the new fonts will deliver sophisticated typographical control to any Mac application, resulting in a font that is fast, flexible and capable of superior quality at all resolutions — from high-end typesetting to screen displays. Apple's outline fonts will be supported by all the major type manufacturers, which means there will be thousands of type styles to choose from in the future. Aside from the enhanced WYSIWYG, outline fonts will dramatically improve the quality and flexibility of non-PostScript printers like the LaserWriter IISC, ImageWriter and ImageWriter LQ. Core System 7.0 will become available in 1990. Not yet priced. Apple Computer, Inc., 20525 Mariani Avenue, Cupertino, CA 95014, 408-996-1010.

QuicKeys 1.2 (for the Mac)
The highlight of this new release is QuickTimer, a utility that allows the user to set a QuicKeys sequence to be executed automatically at various intervals. Sequences can be set up to operate daily or at user-specified periodic intervals, or upon system startup whenever a particular application is opened. It can even open a desk accessory or automatically back-up a program. $15. CE Software, 1854 Fuller Road, P.O. Box 65580, West Des Moines, IA 50265. 515-224-1995.

Screenwipe
This accessory is a premoistened, antistatic CRT cleaning system that comes packaged in a convenient pouch and impregnated with a chemical to remove dust, grit and dirt from the screen. It won't damage screen coatings or endanger internal components as sprayed-on liquids can. $22.50 for a 50-pack box. Aldine Technologies Incorporated, 315 Park Avenue South, New York, NY 10010, 212-505-1000.

Travel Case
Baggage handlers can do their worst, but this heavy-duty shipping case for computers and accessories is designed to take all the abuse any airline or surface carrier can dish out. Features include an aluminum extrusion frame, fiberglass side panels, steel corners, recessed latches and handles, interior foam lining and separate compartments for each component going into a case. The "Air Freight" cases exceed the most stringent ATA shipping container specs. $150–$350. Western Container and Case Company, Box 125, Woodland, MI 48897, 800-882-7112.

Colby Systems Mini WalkMac
Like the 11-pound WalkMac SE/30, the 6-pound Mini WalkMac uses a Mac SE/30 logic board as its foundation and has a 9-inch diagonal PageWide backlit LCD screen. Instead of the WalkMac's flip-up screen, however, the new machine's display is built into the top of a 13.5 x 9 x 2.5-inch rectangular casing that houses logic board, power supply, internal battery, hard drive and floppy drive. Due in the first quarter of 1990, the Mini WalkMac will come with 8 MB of RAM and a 100 MB hard disk; its Sony floppy drive uses high-speed 2-inch disks that hold 1.4 MB of information. Input device alternatives include a built-in trackball located on the top side of the machine; an optional "thumb mouse," a rolling bar input device for cursor control on the keyboard; an ADB port for a mouse or other ADB input device; and an on-screen keyboard like the KeyCaps desk accessory for keyboardless operation. Not yet priced. Colby Systems, 2991 Alexis Drive, Palo Alto, CA 94304, 415-941-9090.

Images with Impact! Business 1 (for the Mac and IBM)
This collection of over 175 high-resolution, PostScript-language images touches on 12 facets of the modern business world, from equipment to money, to hands at work, to aerospace. An extensive user's guide shows many examples of how to use the images and includes a complete pictorial index showing where each image is located and how it is organized. Much of the clip art in Images with Impact! is modular, and individual graphic components can be separated, modified and colorized. $129.95. 3G Graphics, 11410 N.E. 124th Street, Suite 6155, Kirkland, WA 98034, 206-823-8198.

Lotus Interactive Components
Furniture-as-art, designed with ergonomics in mind, these components come in a variety of configurations and are broadly adjustable so the workstation can be tailored to meet individual needs. The basic set-up includes over 30 square feet of usable workspace and is constructed of solid wood, tough laminates and sturdy steel hardware. Drawers are precisely machined with snug-fitting joints, full-extension ball-bearing slides and genuine mahogany on the fronts. A full five-year warranty ensures against structural defects. $350 to $1,750. Dean Santer Design, P.O. Box 88185, Emeryville, CA 94662, 415-653-9300.

P.O.E.M. (Personal & Original Embroidery Machine; for Mac)
This Mac-driven embroidery system is being developed by Aisin Seiki (makers of state-of-the-art sewing and knitting machines) and Enzan-Hoshigumi (originators of Mac Calligraphy) for original patchwork, emblems and personalized embroidery. This machine will embroider any design you draw, enlarging, reducing or rotating it, in up to five colors, which can also be combined (red and yellow can be mixed to form orange, for example. This Mac peripheral takes up no more room than a telephone. Aisin U.S.A. Inc., 333 Sylvan Avenue, Englewood Cliffs, NJ 07632, 201-569-7875.

GAMES

Where in Time Is Carmen Sandiego? (for the IBM and Apple II)
A detective chase, the game is designed to bring history to life by highlighting leading people, events and inventions of the past 1,500 years. In it, the heroine gets hold of a time machine that transports her and her cohorts in crime throughout history, chased by a detective agency (the player). The game includes an online graphic database of historical objects; clues may involve topography, cities and countries, languages, historic events, people and inventions. $44.95. Brøderbund Software, Inc., 17 Paul Drive, San Rafael, CA 94903-2101, 415-492-3200.

Jet Fighter (for the IBM)
Comprised of over 30 first-person combat missions and tied together by a compelling story line, Jet Fighter is the first simulation product to contain as much text as an adventure game. The player accepts a tour of duty as a fighter pilot, qualified to fly a variety of aircraft, simulation includes state-of-the art weaponry, radar homing and heat-seeking missiles, radar chaff and flares to defend against surface-to-air missiles, and more. Starting out as a cadet in Navy Fighter Weapons school, the player is taught by an instructor in another jet. $49.95. Velocity, P.O. Box 875, Palatine, IL 60078-0875, 312-991-0594.

Cosmic Osmo (for the Mac)
Cosmic Osmo is the first animated fantasy exploration title for the Mac, using a combination of HyperCard and MacroMind's VideoWorks II to create a fictional universe with four worlds and a supercool alien hero, Osmo, who travels with the user throughout the solar system. The six-disk program uses VideoWorks to do the card-flipping and to achieve clean graphics and a smooth progression of play. To help compress the size of the program, music and character voices were not included in the HyperCard stack, but rather created as individual files accessed by X-commands. Advanced linking capabilities offer such sophisticated functions as typing a note that turns up in a book in another world, painting a picture that mysteriously appears over the fireplace in Osmo's house and discovering puzzles that unlock passages to other locations. $69.95. Activision, 3885 Bohannon Drive, Menlo Park, CA 94025, 415-329-0800.

The Manhole (for the Mac and IBM)
Now available as a CD-ROM product, the MS-DOS version of this interactive adventure won the 1988 SPA Excellence in Software Award for Best New Use of a Computer. It includes all the features of the original program and adds color. It's supported via standard PC hardware and add-on music equipment. Developed from its popular HyperCard-based version, the Manhole CD-ROM journey begins with the appearance on-screen of a manhole. A click on the manhole causes a giant beanstalk to grow up to the sky, climbing up the beanstalk reveals a mysterious castle and a sky filled with flashing meteors; going down the manhole, users discover a sunken ship deep in an ocean fantasy world. Every click in and around the castle or ship takes players deeper into the adventure and introduces them to dozens of characters in interesting settings. Taking excellent advantage of the potential of both CD-ROM and HyperCard, the Manhole features finely detailed 3D graphics and digitized voices that bring the characters to life, as well as an original music soundtrack. $59.95. Activision. 3885 Bohannon Drive, Menlo Park, CA 94025, 415-329-0800

Shufflepuck Cafe (for the Mac)
This digital adventure leads into a seedy barroom on the wrong side of the galaxy, where various characters and assorted lowlifes challenge the player to a screen-version of air hockey. Each opponent has a unique personality and style of play, and different mouse techniques afford the player added control over his or her own game. $39.95. Brøderbund Software, Inc., 17 Paul Drive, San Rafael, CA 94903-2101, 800-527-6263.

Sim City (for the Mac, Commodore 64, Amiga and IBM)
Each of the eight included scenarios is actually a game in itself, with an unlimited number of ways to win — or lose. Each scenario is a city that is either the victim of horrible planning or about to experience a natural disaster; after loading, the player gets a limited amount of time to correct or repair the problems. Success means the key to the city, fail and you're ridden out of town on a rail. The player creates the strategies, and if one doesn't work, tries another...and another...and another. $49.95 for the Mac; $29 95 for the Commodore 64, $44.95 for the Amiga; $49.95 for the IBM. Brøderbund Software, Inc., 17 Paul Drive, San Rafael, CA 94903-2101, 800-527-6263.

STACKWARE

Facts and Faces of Hollywood Greats (for the Mac and IBM)
This "Edu-Stack" presents the user with a wide variety of questions about the great stars of Hollywood and the movies they made. Points are gained for correct answers and lost for incorrect responses; the questions are asked in random order and answered questions are never repeated. Once the user gains enough points, he or she can go to a screen with a picture of a star hidden in a matrix of tiles. The idea is to uncover tiles by "spending" points, and identify the star as soon as possible by typing the first and last name or last name only, spelling counts. $35. VISATEX Corporation, 1745 Dell Avenue, Campbell, CA 95008, 408-866-6562.

If Monks Had Macs (for the Mac)
On the surface this is an adventure game about a medieval monk's trek through the wilderness to the monastery library, which houses, among other volumes, a hypertext edition of a best-seller by a cloistered monk and the journal that's linked to it. Other stacks in the library concern subjects as diverse as evolution and quantum physics, serious drinking and the meaning of history, and a resistance group in Nazi Germany. The common inspiration for all of them is the conviction that there is a truth in our Western heritage that demands something more than time-management or information stacks; it's about a time before capitalism, and a freedom beyond free enterprise. Shareware/Everyware.

By Love Insured (for the Mac and IBM)
This HyperBack novel by Ellen Chait is an interactive romance, a tale of love, ambition, fashion and passion, that takes place, at least in part, in the offices of Grambling Health and Life Insurance, Inc. in Secaucus Heights, New Jersey. Its characters include Eloise (actress and heroine), Mis Joy Heartburn, George Mainline Branching the First (Founder of the Dynasty), Heathcliffe and Marvin. Shareware, $10. Virtual Communications, 2323 Carleton Street, Berkeley, CA 94704, 415-549-3857

ZaumGadget (for the Mac)
ZaumGadget combines graphics, text and sound in ways not imagined before. One of the ideas behind the stack originated from Zaum, an art movement in prerevolutionary Russia that put forth an extreme kind of futurism; the term Zaum itself means "beyondsense," and Zaumists were concerned with inventing an international language of sounds and pictures that transcended language. The notion of ZaumGadget is to bring Zaum into the computer age, to put information on disk so that people of different cultures can interact with it. Also part of the inspiration for the stack are notions about the Tower of Babel and the problems we have with language today. The author's

interest in experimental art history has influenced the way the program is put together. The magic of the stack is that everyone who goes through it gets a different version. Some people get stuck in the built-in traps, pushing only a few buttons that appeal to them. Others go through it time after time and see all of it. The stack is a demonstration of one of the directions electronic literature can take, a literature not based on the book any longer but on purely visual and mental information. $12. AutoCeptor ExperiMedia, Amandant Hardiker, 1341 Williamson, Madison, WI 53703, 608-258-1305.

Emigre Fonts (for the Mac and IBM)
This animated stack provides samples (uppercase and lowercase alphabet, numerals and some punctuation marks) from 34 individual Emigre fonts, original faces in PostScript. It includes complete ordering information for fonts or free catalog. $5. Zuzana Licko Designs, 48 Shattuck Square, #175, Berkeley, CA 94704.

Ali BaaBaa and the 40 winks (for the Mac)
This stackware presents the entertaining story of a toy sheep and its adventures in an imaginary desert landscape. Ali Baa Baa journeys across the endless sands of the Bed Spread Desert to discover a mysterious Lost City. Through the dark and winding passageways of the Quilti-combs, the user can accompany Ali as he encounters the Genie in a Jam Jar and the unscrupulous dust-bunny villains, the Forty Winks. The authors Robert Mills (writer/producer of several television series and script consultant for Sesame Street Canada) and Karen Valleau (skilled designer and animator) have worked for several years as puppeteers for The Muppets. *Radical Sheep Productions, Inc., 62 MacDonell Avenue, Toronto, Ontario, Canada M6R 2A2, 416-595-5189.

To Artemis (for the Mac)
This stack, designed as a rational method of inquiry, helps the user explore, understand and resolve the problems he or she encounters while seeking personal excellence and pursuing his or her significant goals. A series of questions from over 50 areas of inquiry leads step by step, to an understanding of the forces and ideas that have brought you to your present state of mind. By learning to diagram present and past problem-events and to analyze the resolution (or nonresolution processes), the user explores the interrelationships between ideas and states of mind that produce problems. The goal of the analysis is to help the user anticipate future life crises and to approach them armed with new insights and alternatives for resolving them. $139.95. Nicolea, 419 Main Street, Suite 143, Huntington Beach, CA 92648, 714-536-2038.

LINKS

9600 Plus External Modem
This unit generates throughput up to 19,200 bits per second using MNP Level 5 data compression. It provides high-speed communications over both dial-up and leased lines and accepts data at speeds up to 38,400 bps. The 9600 Plus offers MNP Levels 2, 3 and 4 error correction and is compatible with the CCITT V.42 international error correction standard. Designed according to the CCITT V.32 specifications, it supports CCITT V 22bis, V.22, V.23, V.21 and Bell 212A and 103 and is fully compatible with the AT command set as well as the V.25bis asynchronous and synchronous HDLC, SDLC and BSC dialer. For more sophisticated applications Ven-Tel offers the 9600 Plus II, which operates over both two and four-wire leased lines and provides dial backup and auto restore. Plus, $1195, Plus II, $1395. Ven-Tel Inc., 2121 Zanker Road, San Jose, CA 95131-2177, 408-436-7400.

Mac2400E Internal Modem (for the Mac II)
By implementing both X.PC and MNP levels 2, 3 and 4 error correction, the Mac2400E ensures data transmission over normal telephone lines with 100 percent accuracy; X.PC transfers files over many public networks like Tymnet and MCI, while MNP works modem-to-modem and has an installed base of over 500,000 compatible modems. This unit also supports MNP level 5, offering automatic data compression so users can double throughput to 4800 bps, saving transmission time and telephone charges. A single keystroke switches between or activates MNP and X.PC. NVRAM (Non-Volatile Random Access Memory) is used to store user-specified configuration. $449. Ven-Tel, Inc., 2121 Zanker Road, San Jose, CA 95131, 408-436-7400 or 800-538-5121.

Casio FA-120 PC-LINK (for the IBM)
FA-120 is created for Casio's B.O.S.S. (Business Organizer Scheduling System), and lets you create telephone, memo or schedule files on a PC, then transfer them to the B.O.S.S. unit. It works both ways, so B.O.S.S. files can also be transferred to the PC, the FA-120 disks work with all computers compatible with IBM PC, XT, AT and PS-2. The LINK lets you transfer data from many other popular software programs including Lotus 1-2-3 and SideKick. $109.95. Casio, Inc., 570 Mt. Pleasant Avenue, P.O. Box 7000, Hanover, NJ 07801, 201-361-5400.

Timbuktu 3.0 (for the Mac)
A major upgrade to the application, this new release includes the ability to transfer files on a local area network, allowing two or more users to share screens over AppleTalk. Live, point-to-point transfer is available from any program, offering users an easy, reliable and inexpensive way to move files around on a network; Timbuktu requires no dedicated computers as servers. $149. Farallon Computing, Inc., 2201 Dwight Way, Berkeley, CA 94704, 415-841-5570.

MULTIMEDIA TOOLS

MacroMind Player, Accelerator and Director Interactive Toolkit (for the Mac)
The release of these three tools rounds out the MacroMind family of multimedia software products. The run-time version of MacroMind Director, Player allows the playback of one or more Director, Accelerator or VideoWorks II documents, either as a stand-alone application or from within HyperCard. It's available free to all registered MacroMind Director owners and will be bundled with future shipments. Accelerator is a software product that performs a compile-like process on MacroMind Director or VideoWorks II documents; it speeds up playback of documents up to 30 frames per second and allows users to produce digital video-quality animations. Accelerator is priced at $195. The Director Interactive Toolkit leverages the color and enhanced capabilities of Director, based on the same interactive technology used to create the Guided Tour disks that ship with every Mac. The add-on module adds a HyperTalk-like language called "Lingo" to Director, allowing the user to produce interactive presentations, time-based simulations, prototypes and courseware. The Toolkit is $300 to registered Director owners. MacroMind Incorporated, 410 Townsend, Suite 408, San Francisco, CA 94107, 415-442-0200.

LetterPress CD ROM (for the Mac and IBM)
Its manufacturers are calling it a "revolutionary new design tool," because this CD-ROM application contains 600 PostScript typefaces, all original designs licensed from the world's famous foundries like ITC, American/Kingsley, VGC and others. The disc represents a convenient library of the most commonly used typefaces found today, from text and copy faces to decorative advertising and headline fonts. LetterPress CD-ROM includes a special locking program; it's almost the equivalent of a desktop type store, because fonts can be purchased and unlocked as required. The PostScript and bitmapped fonts can then be copied to a hard drive or accessed directly from the CD ROM with applications like Suitcase II, MasterJuggler or Font D/A Juggler Plus. Included with every font is an Adobe Illustrator file with that character set as editable Illustrator art work. $4999 for the entire library, or available font-by-font after purchase of an initial font set. Image Club Graphics, Inc., Suite 5, 1902 11th Street S.E., Calgary, Alberta, Canada TSG 3GS, 403-262-8008.

PLUS 1.0 (for the Mac)
A HyperCard-compatible professional multimedia software toolkit, PLUS boasts 256 colors, large-screen support, cards of any size, word processing and database fields. Its language, PPL, includes extensions and additional commands to HyperTalk, and PLUS opens HyperCard stacks directly without changes or conversions; it's compatible with most previously written stacks. It requires a minimum of a Mac Plus with 1 MB of RAM (2MB Mac II required for color). $199. OLDUVAI Corporation, 7520 Red Road, Suite A, South Miami, FL 33143, 305-665-4665.

MacRecorder 2.0 (for the Mac)
The new version of the sound system features advanced interactive multimedia support through the new HyperSound Toolkit, letting users build interactive HyperCard sound stacks of sampled and compressed sounds. MacRecorder can be used with HyperCard, MacroMind Director, Silicon Beach Software's SuperCard, Acius's 4th Dimension, Authorware's Course of Action, Informix Wingz, Ashton-Tate's Full Impact, Studio Session and Jam Session among other HyperCard applications. Once stacks are compressed and customized they can be applied to various business, education, government and personal use applications. $249. Farallon Computing, Inc., 2201 Dwight Way, Berkeley, CA 94704, 415-841-5570.

ANIMagic (for the Amiga)
ANIMagic works with VideoScape 3D, Deluxe Paint III and most popular paint and animation programs, performing special effects with ANIM format animations or IFF picture files (including 4096 color HAM images). Possible Digital Video Effects (DVEs) include spins, page turns, venetian-

ArtRoom 3.0 (for the Mac)
This CD-ROM contains 120MB of EPS PostScript "digit-art" clip art, and more than 100 "hot type" laser fonts, templates and tutorials. The Image Club retriever lets the user search for the desired clip art images using an extensive array of keywords and associated words. The second CD-ROM, DarkRoom, is a stock photo library of more than 400 professional photos, scanned at 100 dpi in TIFF format; selected black-and-white photos can be taken directly from the CD-ROM and placed into a page layout program. By using these applications in conjunction with LetterPress, the desktop designer can extend resources for the creation of documents and publications. $999. Image Club Graphics, 1902 11th Street S.E., Calgary, Alberta, Canada TSG 3GS, 403-262-8008.

blinds, confettis, strobes and unusual color and tiling effects. The resulting animations can then be edited, enhanced or spliced together for longer movies. $99.95. Aegis Development Inc., 2115 Pico Boulevard, Santa Monica, CA 90405, 213-392-9972.

COLOR TECHNOLOGY

1435 Slide Scanner (for the Mac II)
The 1435 can digitize 35mm mounted or unmounted color transparencies, movie frames, even aperture cards, typically in less than 3 minutes. The user digitizes a color slide, stores the 24-bit image data to disk, and then can manipulate, retouch and color correct the image with photodesign software (from third parties) on a workstation. It's compatible with a variety of computer buses and systems via the IEEE-488 (GPIB) interface, offers 2800 dpi resolution (3000 x 4096 pixels over the field of view) and dynamic range of up to 12 bits per pixel of color. Eikonix Imaging Systems, 15 Wigins Avenue, Bedford, MA 01730, 617-276-7121.

ColorBoard 264 (for the Mac II or SE/30)
This 32-bit, QuickDraw-compatible graphics display board breaks the price barrier, coming in at under $1000 for the Mac II. It's also offered for about $300 more in Mac SE/30 (24-bit) format. ColorBoard 264 is capable of displaying 1, 2, 4, 8 and 24 bits of color on a 13-inch monitor at resolutions of 640 x 486 (interlaced), and utilizes extensive C-MOS technology so it draws less than 1 amp of power per NuBus slot. It contains 1.5 MB of on-board video memory and is rated Class B by the FCC. $995; $1295 for the Mac SE/30. RasterOps, 2500 Walsh Avenue, Santa Clara, CA 95051, 408-562-4200.

RasterOps 264 Chip Set (for the Mac)
This is a set of two proprietary custom chips utilizing the most advanced VLSI chip design and manufacturing technology to substantially lower the price, power consumption and heat dissipation of true-color, 32-bit, QuickDraw-compatible display boards, the same set used in the ColorBoard 264. $1295 for the SE; $995 for the Mac II. RasterOps, 2500 Walsh Avenue, Santa Clara, CA 95051, 408-562-4200.

ColorCapture upgrade (for the Mac II family)
The videographics board that allows real-time (1/30 sec) video frame grabs, output to videotape and true-color display in 32,000 colors has upgraded to operate the 32-bit QuickDraw as a true-color device, making it compatible with numerous third-party products that support QuickDraw. The board captures 640 x 480 square-pixel images, and also doubles as a 16-bit display and allows video graphics to be output as both RGB and NTSC (or PAL) composite video. $2995. Data Translation, 100 Locke Drive, Marlboro, MA 01752-1192, 508-481-3700.

ColorMAX (for the Mac IIcx)
The industry's first user-upgradable color board, from 8 to 24 bits, simply requires installing more RAM purchased at a local dealer. The system features 1024 x 768 resolution at 72 dpi on a high-quality Sony Trinitron 19-inch monitor. Its 79 Hz refresh rate is the highest offered on any Trinitron monitor, with 786,432 displayable colors out of a palette of 16.8 million. $8495 for 24-bit color and $6295 for 8-bit color. Sigma Designs, 46501 Landing Parkway, Fremont, CA 94538, 415-770-0100.

TekColor (for the Mac)
The first color fidelity system that optimizes color matching, this system helps users to pick screen colors that can be duplicated by their output devices. Because its open interface specification is based on the CIE international standard, the color management software is device-independent. TekColor can support color printers and video displays, film recorders and virtually any other output device. The system includes the TekColor Picker, a color selection and editing interface with a screen allowing users to select a "hue leaf" showing a range of shades within a given color set; changing a color's value or chroma has intuitively predictable effects. The program will be available in October. $50. Tektronix, Inc., Wilsonville Industrial Park, P.O. Box 1000, Wilsonville, OR 97070, 800-835-6100.

PhotoMac 1.1 (for the Mac II family)
With this enhanced version, users of PageMaker, QuarkXPress and Ready,Set,Go! can now electronically color separate and strip complete page layouts, including photos, graphics and type onto a single set of negatives. The software also features new picture-sharpening algorithms that improve the final output quality. Available to registered users for $90. Avalon Development Group, 1000 Massachusetts Avenue, Cambridge, MA 02138-5304, 617-661-1405.

Pixelmaster (for the Mac II family)
Compatible with QuickDraw and PostScript, this high-quality full-color printer uses standard office paper. It's designed, when installed with one of Howtek's Scanmaster digital color scanners, to enable users to output merged color images with text utilizing the full range of PostScript language and QuickDraw capabilities, such as rotation and scalable fonts. Thirty-five professional-quality fonts will be supported initially with an infinite number of point sizes through an intelligent font-scaling system. Under $7500. Howtek Inc., 21 Park Avenue, Hudson, NH, 03051, 603-882-5200.

Advanced Graphics Subsystem (for the Mac SE and Mac II families)
The system consists of the Spectrum/24 true color graphics card, a 100 MB DataFrame hard disk drive and a high-performance 19-inch color monitor. The Spectrum/24 supports Apple's 32-bit QuickDraw standard as well as the full complement of index colors and true color. At 24-bit pixel depth, users can draw from a universe of nearly 16.8 million colors to create and manipulate photo-real images and complex color effects. The DataFrame XP 100 hard drive includes hard disk management, data security, DiskFit backup-and-restore utility, and SuperLaserSpool and SuperSpool printing capabilities. The color monitor is based on the same Trinitron technology used in the 13-inch AppleColor Monitor. $3999. SuperMAC Technology, 485 Potrero Avenue, Sunnyvale, CA 94086, 408-773-4446.

Ad-Builder Electronic (for the Mac)
Here is a CD-ROM translation of the same advertising ideas and graphics found in the Ad-Builder proof book, which has served the retail advertising industry internationally for over 45 years. Ad-Builder Electronic is designed especially for the advertising professional who needs a continual supply of high-quality desktop graphic images and complete advertising layout ideas. Subscribers receive shipment every other month containing two issues, putting Ad-Builder in the user's hands up to 90 days prior to the selling season of the theme material it contains. The program contains Adobe Illustrator art and illustrations, vectored headings and borders, seasonal themes and promotions. Each issue contains demonstration ads for financial institutions, grocery outlets, T-shirt designs, flyers and brochures, radio scripts, point-of-purchase materials, displays and other ideas. $145 per month for the CD-ROM. Multi-Ad Services Inc., 1720 West Detweiller Drive, Peoria, IL 61615, 309-692-1530 extension 404.

Bose Roommate Speaker (for the Apple IIGS and the Mac)
Early in the development of Apple's new computer, with its high-quality sound digitizing and synthesis capabilities, the company teamed up with the Bose Corporation and used Bose's Special Edition Roommates in all product demonstrations. The compact Roommate speakers offer a room-filling, lifelike sound that complements the Apple system's 15-voice synthesizer. Using technology originally developed to turn pocket stereos and portable compact disc players into complete music systems, the Bose Roommate features two full-range drivers, a dual-channel power amplifier, an active equalization network and distortion-limiting circuitry, all packed into two 6 x 9 x 6-inch enclosures. Featuring many of the advances used in Bose's top-of-the-line 901 loudspeakers, the Roommate can transform nearly any product with a headphone jack into a powerful audio system. $229/pair. Borman Associates, Inc., 124 East 40th Street, New York, NY 10016, 212-972-8850. Apple/Bose Roommate, 800-444-2673.

VIDEO

Neotech TimeFrame (for the Mac II family)
Enhancement software for the Neotech Image Grabber NuBus grayscale video capture board, TimeFrame allows the recording and playback of video sequences with time-lapse control. Captured video sequences can be used with a variety of specialized Mac programs, and are particularly effective as recorded media for Director from MacroMind. The program automatically records video sequences and stores them in memory or on disk for later playback or exportation to animation or analysis software. It covers all aspects of timing, camera control and image processing parameters. Available in fourth quarter 1989, $199. Advent Computer Products, Inc., 449 Santa Fe Drive, Suite 213, Encinitas, CA 92024, 619-942-9456.

Neotech Still Video Control Kit (for the Mac II family)
This kit works as remote control for the Canon RV-311 Still Video Player when used with the Neotech Image Grabber NuBus gray-scale video capture board, and is designed as the first step toward seamless integration of electronic still video and Mac video imaging. It consists of "plug-in" software and a computer interface cable, letting the user control the Canon system remotely, view on the Mac screen all 25 frame images stored on a video floppy (VF) disk, browse through them and select images for capture. The software includes modules that can be accessed directly from within Letraset's ImageStudio and Silicon Beach's Digital Darkroom, in addition to Neotech's own acquisition software supplied with every image grabber. $99. Advent Computer Products, Inc., 449 Santa Fe Drive, Suite 213, Encinitas, CA 92024, 619-942-8456.

ColorSpace II (for the Mac II)
The ColorSpace II is a videographics card that lets you produce full-color professional-quality videotapes and multi-media presentations quickly, inexpensively and in-house. It's fully compatible with HyperCard, SuperCard and Director, and works in conjunction with other Mac II cards or in place of the Apple Video Card. The card's genlocking lets you synchronize your Mac graphics to almost any VCR or other standard video signal, then overlay titling or graphics, mix the two signals together and display the results. $2299.95. MASS Microsystems, 550 Del Ray Avenue, Sunnyvale, CA 94086, 408-522-1200.

ColorSpace FX (for the Mac II family)
This video board brings real-time, flicker-free video and image manipulation capabilities to the Mac II, automatically converting standard NTSC, PAL or SECAM composite video signals into a flicker-free, high-frame-rate or standard-frame-rate RGB signal, all in full color without slowing down your machine. Real-time, live-image manipulation features such as mirror, kaleidoscope, spin and picture squeeze effects can be controlled through HyperCard as well as from standard Mac applications. $3499.95. MASS Microsystems, 550 Del Ray Avenue, Sunnyvale, CA 94086, 408-522-1200.

PRESENTATION WARE

Still Light 3.0 (for the Mac and IBM)
The new version of this digital recorder system features a Bitstream font capability for versatile font imaging, as well as compatibility with Apple's 32-bit QuickDraw for producing slides with up to 16.7 million colors on the Mac II. Version 3.0 comes complete with Bitstream's Times, Helvetica and Symbol scalable fonts and has been designed to recognize other commercially available Bitstream fonts automatically to give users the widest range of type styles and sizes for making slides, transparencies and films. Owners will be able to use their existing font library and purchase additional fonts from their Bitstream dealer or American Liquid Light. $3995. American Liquid Light, Inc., 2341 205th Street, Suite 116, Torrance, CA 90501, 213-618-0274.

Dimensions Presenter (for the Mac)
This program lets you create 3D images and animation from a wide variety of 2D design programs like MacDraw, Claris CAD and Dreams. Dimensions Presenter acts as the missing link between Mac design and presentation programs allowing high-quality rendered images, up to 60 frames/second animation and interconnectivity with other Mac and PC design and presentation programs. Data input format is 3D-PICT, letting you add 3D attributes to existing 2D geometry directly in object-oriented programs. $595. Visual Information Development, Inc., 16309 Doublegrove, La Puente, CA 91744, 818-918-8834.

MacAtlas Presentation Pack (for the Mac)
A complete set of maps designed for creating presentations on the Mac, this program features worldwide coverage in PICT format with maps of the USA by state, each state by county, world regions by country and the entire world — over 80 maps on two 800K disks; capability for importing into any present program that accepts PICT files; capability to colorize and embellish maps with a presentation program after they are imported; areas drawn as separate polygons for customizing convenience — users can select individual countries, states and counties, and then use fill patterns, arrange into new groups, create drop shadows, and so forth. $199. MicroMaps Software, Inc., P.O. Box 757, Lambertville, NJ 08530, 609-397-1611.

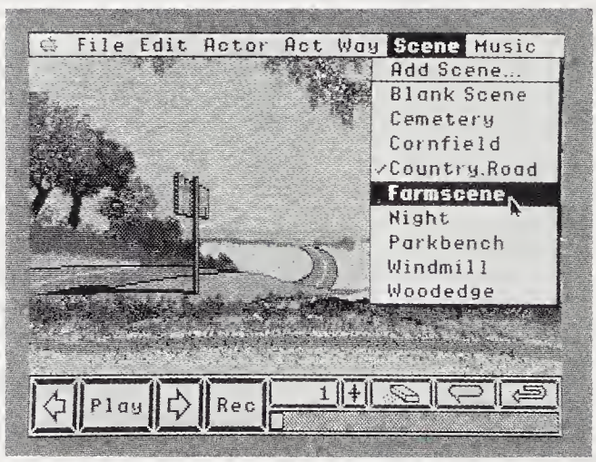
3D GRAPHICS

StrataVISION 3D (for the Mac II family or the Mac SE/30)
The data or objects in StrataVISION 3D's database can be created within the program or from a variety of sources such as CAD files. One powerful technique available is extrusion, which lets the user "push" a two-dimensional graphic through space to create a 3D object. The program has five rendering modes: wire frame, flat-surface shaded, Gouraud shaded, Phong shaded and ray-traced, and 17 rendering options; it offers an unlimited number of light sources. $495. STRATA Inc., 249 East Tabernacle, Suite 201, St. George, UT 84770, 801-628-5218.

ZING (for the Mac or IBM)
Created as a low-end PC- and Mac-compatible 3D graphics program, ZING offers the standard features for creating, shaping, shading, coloring and exporting true three-dimensional objects. It includes hundreds of ready-made 3D objects from resident clip art, as well as a feature that lets users manipulate text by typing it into a dialog box and then converting it into 3D headlines using a font from resident clip art. ZING is compatible with many page layout, graphics and video programs that support PICT, PICT II, Color PostScript, TIFF, EPS and EPS with TIFF. $199.95. Mindscape Inc., 3444 Dundee Road, Northbrook, IL 60062, 312-480-7667.

2D GRAPHICS

PixelPaint Professional (for the Mac SE/30 and Mac II)
A true color paint program that allows users to import, create, manipulate and export photographic-quality images, this program supports Apple's 8-, 16-, 24- and 32-bit color display standards. In its most



Cartooners (for the Apple IIGS)
Operating on the precept that movie moguls need to get started early, Apple has come out with this computer cartoon studio created especially for children. Cartooners can create and animate colorful characters and scenery to produce musically accompanied stories. The program is designed to motivate self-expression and creativity, imagination, social interaction and discovery, according to the manufacturers, by employing many of the same sound graphics and animation elements of products for older audiences. Cartooners is compatible with several different musical programs from Electronic Arts, as well as Deluxe Paint II. Kids can choose from a library of characters, then animate them in a variety of ways that include dancing, walking and moonwalking. The program also offers several different settings, the ability to create speech balloons for the characters and a printing option. $59.95. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404, 415-571-7171 extension 590.

HyperSource ToolKit (for the Mac with CD-ROM)
HyperSaurce is a HyperCard stack that autamates the develapment af graphic databases. The stack searches thraugh a directary (such as a specific folder ar an entire valume or disk) for graphic files. Each time it finds a graphic file, HyperSaurce creates a card (a database recard) in the HyperCard stack, creates a thumbnail sketch af the graphic, pastes the thumbnail sketch af the graphic anta the card and puts the graphic file's name and file type inta the appropriate fields. This stack is then assaciated with the ariginal graphics, which can reside an a hard disk, file server ar CD-ROM disk. If keywards have been assigned ta graphics, HyperSaurce autamatically creates indexes taa. Different file farmats (MPNT, PICT or EPSF) are handled transparently, which means users can preview, apen, capy ar print a graphic withaut having ta knaw its file farmat and without needing the applicatian that created the file. With small extensians, HyperSource can alsa suppart additianal file farmats like TIFF. Available third quarter 1989, price ta be annaunced. Apple Computer, Inc., 20525 Mariani Avenue, Cupertina, CA 95014, 408-996-1010.

powerful mode, the software fully exploits Apple's 32-bit QuickDraw and a true color graphics card, letting users work on-screen with nearly 16.8 million colors at once, or as many as the monitor is capable of displaying. The program supports both QuickDraw and PostScript-compatible printers and other output devices such as digital typesetting and color separation equipment. Users buying PixelPaint between May and September 1989 can trade up for $95. SuperMAC Technology, 485 Potrero Avenue, Sunnyvale, CA 94086, 408-773-4446.

Cricket Stylist (for the Mac)
This long-awaited upgrade of Cricket Draw supports Apple's 32-bit QuickDraw standard and offers such PostScript special effects as shadows. Other new features include the ability to create objects with drawing tools such as the line, rectangle and freehand tools, and then convert the objects into Bezier paths for editing. The program also contains a ruler-based text processor that offers control over text color, kerning and leading. Text can be shadowed, rotated, stretched, skewed and reflected to create special effects. $99. Computer Associates, 10505 Sorrento Valley Road, San Diego, CA 92121, 619-452-0170.

Corel Draw 1.1 (for the Mac and IBM)
This major upgrade of the Windows-based illustration package includes a typeface conversion program, 45 new typeface outlines, additional clip art, Windows Clipboard support, a CGM (Computer Graphics Metafile) import/export utility and slidemaking via SCODL. WFNBOSS, the typeface conversion program converts typefaces for true on-screen WYSIWYG, on-screen kerning, lettershape editing, added special effects using graduated fills, interactive word and character spacing, text on a curve and output on any supported Windows device including HP LaserJet, HP PaintJet, dot matrix printers, plotters, PostScript printers or Matrix film recorders. $595, with upgrade kits for registered users available at $99. Corel Systems Corporation, Corel Building, 1600 Carling Avenue, Ottawa, Ontario, Canada K1Z 8R7, 613-728-8200.

Mandelbrot Explorer 3.0 (for the IBM)
A program for creating fractal graphics images of Mandelbrot and Julilea sets, this upgrade requires a 16/64-color EGA or VGA graphics card at resolutions of up to 800 x 600 pixels. It provides a wide range of facilities for composing, coloring, storing and displaying fractal images and for studying the chaotic dynamics of the Mandelbrot set at magnifications as high as 16.5 trillion power. Version 3.0 adds optimized 80386 capability, "slide shows" of stored images, the ability to compose screens of several images and the option of saving all the numerical raw material of an image in a "Tally file" to greatly increase control over final coloring. $30. Peter Garrison, 1613 Altivo Way, Los Angeles, CA 90026, 213-665-1397.

SmartArt I, II and III (for the Mac)
SmartArt provides two ways to move PostScript effects into your documents. You can copy them from the SmartArt window and paste them into your document, or if your program imports EPS, you can save the effect as an EPS file and then import it into your document. SmartArt II contains 15 effects, including a spiral, a pyramid and a star burst, Smart Art III contains 15 headline design formats such as drop caps, double border and neon. SmartArt requires at least a Mac Plus and a PostScript laser printer with a resolution of 300 dpi, and is limited to text strings up to 255 characters. $149.95. Emerald City Software, P.O. Box 2103, Menlo Park, CA 94026, 415-324-8080.

FONTS AND FONT TOOLS

Fontmaster (for the Mac)
This "freeware" can be used to examine all of the FONT and NFNT resources open on a Mac system. Fonts can be installed in the system file or in an open "suitcase," and the user has the choice of displaying or printing either the fonts themselves or pertinent information about the fonts, including font family name, screen sizes present, space occupied, style, and ID number or FOND number. You can elect to examine only fonts installed in the system, or open all fonts up to a maximum of 700. Free. Varityper, Inc., 11 Mt. Pleasant Venue, East Hanover, NJ 07936, 201-887-8000.

TypeStyler (for the Mac)
Users can customize, manipulate and create special effects with display type with this application, as well as create and add thousands of different styles to text, including fades, sunbursts, shadows and patterns. As a desktop publishing tool, it provides the full range of features for designing, laying out and printing headline text and logos, as well as complete ads, signage and packaging. Text can be manipulated by Bezier curves into almost any shape or size. $199.95. Brøderbund Software, Inc., 17 Paul Drive, San Rafael, CA 94903-3200, 415-492-3200.

Fontographer 3.0 (for the Mac)
This new upgrade introduces capabilities like automatic generation of PostScript and bitmap "hints," autotrace of scanned characters and integrated editing of bitmapped fonts. New drawing tools include a "multipath" tool for freeform drawing of strokes with automatic placement of points and paths. Display and window handling capabilities have been added, and changing tools, point sizes and types has been simplified. $395. Altsys Corporation, 720 Avenue F, Suite 109, Plano, TX 75074, 214-424-4888.

MASS STORAGE

ExpandaCRATE (for the Mac)
This 45 MB removable hard drive has a 25 millisecond access time and a 10 Mbs data transfer rate, featuring a 45 MB removable data cartridge. It's designed for users with data security needs; the cartridge can be removed and stashed in a safe place once the data has been saved. It can also be used as a backup system for other drives, and comes with power and data cables, utility software and user manuals. $1535. Crate Technology, 6850 Vineland Avenue, North Hollywood, CA 91605, 818-766-4001.

IN PRINT

The Computer Networking Book
To be published in October this year, this book is written as a plain-English guide to help business owners and managers decide whether they need a network, determine the best network for their environment, create a network without disrupting a business, phase in a network step by step without costly delays or large capital outlays, ask the right questions of consultants and technicians, and avoid common networking pitfalls. $24 95. Ventana Press, P.O. Box 2468, Chapel Hill, NC 27515, 919-942-0220.

The Bit
This six-times-a-year journal of new electronic media is based on the premise that the telecommunications, computer and media industries are increasingly interdependent. It includes essays, interviews and product reviews geared to explain how these new technologies are being used to develop and deliver interactive information products, collectively termed "newmedia." Charter subscription rate, $99. Magnetic Press, 503 Broadway, New York, NY 10012, 212-219-2831.

Should I Kick It?

continued from page 19

"It's the sound of your voice, John," I said.

Two weeks later the same thing happened again: a long day of working; shut down; failure to reboot. John happened to call while I was still in my deep-breathing phase.

"I think you may have an overheating problem," he said, as I idly turned on the machine, just to give it another chance. It booted!
"It *is* the sound of your voice, John!"

Dragged Into the Future

John's voice and its effect on my computer are now a standing joke. We pass the story around, trying to describe processes we don't understand. We use old words to describe the computer's ways (crash, drag, loop, save, cut, copy, paste). But ultimately the computer's workings begin to change us and our language, dragging us into the future. When I nurse my baby, John says I'm "downloading."

We learn to adjust our habits to fit the peculiarities of the medium — for instance, the fact that work done on a computer is ephemeral. If you write in longhand or with a typewriter, at the end of the day you'll have a batch of papers covered with black marks. Very tangible. If you've used a computer, you may also have the black-marked paper, or the potential for it locked in a small, rigid "floppy." But you may have only the memory of what you wrote, if you forgot to save before your system unexpectedly crashed. This vulnerability is what makes some people afraid to commit their thoughts to the electronic ether.

Yet the computer, when I and it are working well, is a tool that fully uses and stretches my intelligence and talent. I depend on it daily for the pleasure and reliability of doing good work. Is this dependence too great? Does the computer enhance creativity or dampen it? What would I be without my computer; without my other tools?

One can think of tools as extensions or substitutes for parts of our bodies. A musical instrument is an extension of the voice. We depend on it for the variety and range that the voice cannot provide. But without my violin, I could still sing. Without my car, my gas-powered "legs," I could still walk. And without my computer, I could still think. The computer is an extension of my hand, that writes and draws, and also of my mind — the mind that creates and recognizes patterns, organizes elements, defines terms and then violates the definitions. I greatly enjoy using a tool that has so obviously been designed to make good use of my mind. I could live without it, but I'd rather not.

The Stuff of Poetry

Sometimes the computer's ways invade my dreams, especially if I've worked too long on tasks that have become rote. After using FreeHand all day for a series of technical illustrations, I dreamed of a family I know, whose psychological makeup interests me. I saw the mother, father and children on the screen and felt compulsively bound to "select" and then "group" and "ungroup" them. Is this dehumanizing? I don't think so. I think it's the stuff of poetry.

How does it affect one to use a machine that one could not repair or reassemble or invent? Perhaps not so much differently than a gardener is affected by working with plants she could not repair, reassemble or invent. We can plant seeds in neat rows or cast them broadly, follow our intuition about coming rain or calculate the odds from our almanac. In the end, the phenomena of existence remain mysterious. We are human beings grappling and fiddling with ephemera we barely understand. ●

LETTERS TO THE EDITOR

I just received my latest issue of *Verbum* and read Steve Hannaford's article, "Beyond the Toybox." I don't think an article could have been more "right-on!" He pointed out a number of things which I think are extremely important to people who want to work in multimedia, interactive multimedia, hypermedia or whatever they want to call it. Having come from a motion picture background, we know that making things move, spending a lot of money, using a lot of technology and/or doing a lot of special effects doesn't make for an interesting film. *Howard the Duck* and *Ishtar* are very good examples. ...Finally, Hannaford points out one of the very great needs in this country, which is education. We think a lot of the potential of interactive multimedia should be pointed toward that immediate marketplace.

Bob Abel
Los Angeles, California

I would like to congratulate you on your magazine. As an author and desktop video enthusiast, I think *Verbum* fills a very important niche in exploring the realm of PC animation.

I would, however, like to address a few inconsistencies which appeared in your *3.2* issue, in an article titled "Down to the Desktop." While Mr. MacNicol appears to be very knowledgeable of IBM and Mac capabilities, his knowledge of the Amiga as an animation platform appears to have come from an Amiga specification sheet.

In his article, Mr. MacNicol states that the Amiga is limited to 16–64 colors. I would like to point out to your readers that most ray-traced animations on the Amiga are rendered in the Amiga's unique Hold and Modify (HAM) mode, which displays a full 4096 colors on screen at once. Even in high-resolution interlace, the Amiga can display an apparent 136 colors through blending (known as Virtual Colors, long known to IBM artists plagued by the 16-color barrier).

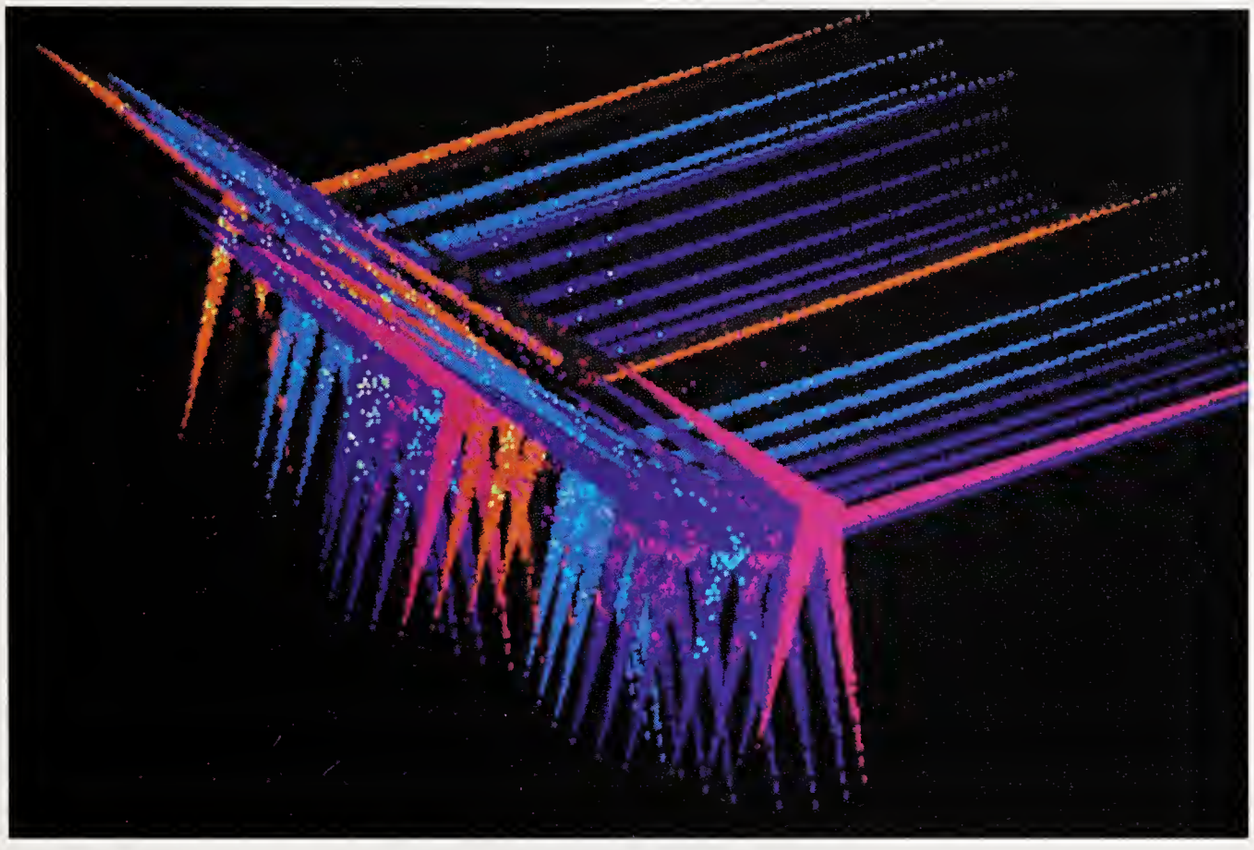
I would ask the author where in the world he heard that "anti-aliasing" is not available on the Amiga? Any user of Deluxe Paint III knows the usefulness of this feature within D'Paint's Perspective mode, not to mention the anti-aliasing available in the better rendering programs (Byte by Byte's Sculpt 4D comes to mind). Mr. MacNicol goes on to state that the Amiga is limited to resolutions of 640 x 400. While this is true for a "vanilla" Amiga, there is no mention of video upgrades that can increase this. Don't misinterpret me: the IBM is an outstanding animation platform, but it can only match an "out-of-the-box" Amiga's graphic capabilities after extensive (and expensive) hardware add-ons.

The soon-to-be-released Enhanced Chip Set (ECS) allows for a full megabyte of video memory and resolutions of up to 1280 horizontal pixels per scan line, including 640 x 480 noninterlaced. Moreover, with a monochrome scan converter, the Amiga can achieve 24-bit RGB images with over 16 million colors to be output to professional frame buffers at resolutions exceeding 1024 x 1024.

With a 68020 or 25 MHz 68030 board dropped into one of its slots, the multitasking Amiga can outperform any animation platform currently available in the PC realm. I seriously doubt that "AT clones that can be had for under $1000" can match the power or versatility of the 32-bit Amiga 2500. To be sure, the Amiga has several limitations (most have to do with its DOS), but its graphics capabilities are certainly not one of them.

John Ryan
Contributing Editor, Run Magazine
Biloxi, Mississippi

Thank you for your added insights and information. We're happy to publish them here for the benefit of our other readers — Ed.



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■ *by Russell Sipe*

WHOSE TURN TO PLAY GOD?

Russell Sipe is the founder and Editor-in-Chief of *Computer Gaming World*, the oldest magazine of its kind in the world. When not running his business, he enjoys astrophotography, sailing and square dancing.

Computer games are improving at warp nine. In the past 15 years I've seen computer games and simulations evolve from a moving white dot bouncing around my TV screen (Pong) not only to simulations of world economics, global warfare and alternate universes, but to full-color stereo simulations of Creation itself. The incredible phenomenon of noninteractive electronic video entertainment (otherwise known as television) took 50 years to go from a black-and-white image with mono sound to color with stereo sound. A look at computer gaming today can give us an idea of where computer games may be when they reach their fiftieth birthday.

Computer gaming and simulating take on many forms — from hand-held arcade games, through coin-op action games, on up to personal computer games that can simulate almost anything. And beyond these mere games there's a whole world of simulations used by the military for training purposes.

War Games

Now pilots, sailors and soldiers around the world train with computer simulators. Even the Soviets are using computer simulations for training purposes these days. The entire July 17, 1989 issue of *Defense News*, a tabloid covering the military-industrial complex, is dedicated to computer simulations. In addition to a host of articles on the various simulators, 12 companies ran impressive four-color ads for their various computer-generated combat simulators. Remember the computer training complex portrayed in the movie *Top Gun*? It really exists. In fact the Air Force has 12 of them scattered around the globe.

Games the Rest of Us Play

There are many ways to categorize personal computer games. For our purposes let's label them arcade/action, simulation and adventure. The arcade/action game has been around the longest and is the most familiar. It suffers from a heavy dose of "me too" products. From the 24th rip-off of Galaxian to the 14th attempt at Battlezone, most releases in this category show little creativity. Yet the category thrives, especially with the younger generation and among casual gamers (those who play a game once in a while, rather than as a hobby). This category is so popular in spite of its lack of originality because, at its best, an arcade/action game works like a good mantra. Its repetitive hand-eye coordination exercises take you out of your daily life and put you in an alternate mind-set.

Simulations, on the other hand, are aimed at the gray matter more than at muscle groups. After a time the mind begins to outgrow (or even rebel at) the hand-eye-coordination exercises and demands something more cerebral to maintain its interest, something more like "real life." We especially want to experience those aspects of life that are unavailable to us in our daily routine. We want to fly over the Mediterranean and shoot down those fanatical Libyans, we want to close that deal that will make us the new Donald Trump, we want to hobble up to the plate in the ninth inning of a World Series game and hit the home run that makes us a real-life Roy Hobbs. But we can't. Unless someone designs a simulation that lets us do it. This is life in the vicarious lane. And it has a big draw on a lot of us.

JUNKO HOSHIZAWA

Finally, there's the adventure game, wherein you take your alterego (usually a character in the game) through a story line or series of events in which you more or less control your destiny. This is story telling of a different sort than the novelist gives us. It's interactive. You have some control over the outcome of the story. It's the interactive nature of the adventure game that sets it apart from other forms of entertainment. Indeed, it's the interactive nature of games in general, and all three types of computer games in particular, that set them apart from other sorts of entertainment. Computer games can't compete with television or movies when it comes to creating vivid, believable images. Nor can they compete with the richness of musical expression one can buy at the local record store. What they *can* do, and do with increasing skill each year, is create interactive entertainment that immerses us in other worlds — on a battlefield, in the city planner's office or at the helm of creation.

The State of the Art

To my mind, the two most impressive personal computer games of summer 1989 are Populous and SimCity. Designed in Britain, Populous casts the player in the role of a spiritual "leader" — frankly, God, or a god, or a deity. As a god you manipulate your people (the chosen ones) and nature itself (through "acts of god" such as earthquakes, volcanos, and so on) to subdue those who are not your people (the heathen). Although the game sounds a

By the mid 1990's optical storage will be standard for all computer applications, games included.

bit macabre, it's actually quite lighthearted. The wonderful graphics and sounds of this Amiga game are done in such a whimsical manner that playing Populous is more like enjoying a Saturday-morning cartoon than anything else.

Would you prefer controlling people's destinies on a somewhat smaller scale? SimCity is a marvelous simulation of urban development. You play the role of city planner. You zone for commercial, industrial and residential development, building roads, mass transit, airports, seaports and so forth. You watch your city grow from an early wilderness settlement to a metropolis. This dynamic game uses an American Urban Architecture model to provide a very realistic simulation of urban development. It's available for Macintosh, Amiga and Commodore 64.

In the August 1989 issue of *Computer Gaming World* magazine readers reported that their favorite simulation was F-19 Stealth Fighter from Microprose (for IBM computers and IBM clones). A detailed simulation of America's most elusive fighter, F-19 allows the player to fly missions in four theaters: Libya, Persian Gulf, North Cape and Central Europe. The player must learn a variety of bombing techniques, conduct air-to-air combat operations, and learn techniques for air-to-ground attacks. Beyond all this the player learns how to avoid radar detection from both pulse- and Doppler-type radars. This is not an arcade game. It's the hottest simulation presently on the market.

Another highly rated game is Neuromancer, based on William Gibson's cyberpunk novel of the same name. As in the novel, the player "jacks into" cyberspace via a neural interface known as a cryptology chip (a silicon socket in your head), the ultimate computer-human I/O. Neuromancer is available for Apple II and Commodore 64.

Warp Nine

Gibson's *Neuromancer* is science fiction now. But within our lifetime it could well be science fact. The next major step in computer-based entertainment will involve optical storage devices hooked into computers. The leading candidate for mass production of this technology is Compact Disk Interactive (CDI). These devices will store hundreds of video images (both static and animated) as well as complete sound and musical scores, to provide the most realistic, immediate presence yet experienced in a computer game. Look for the first CDI games to be out in 1991. By the mid 1990's optical storage will be standard for all computer applications, games included. The interfaces we'll see then will include, among other things, such devices as 3D stereo eyephones. By the turn of the century, I predict, we'll see the beginnings of Gibson's neural I/O. Computer games are going where no human being has gone before, and I plan to be on board for the ride. ●

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■ *by Mark Stephen Pierce*

MAKING FUN

In general, when I tell people I'm a video game designer, they say things like "Oh, are they still making those?" and "Gee, I'm sorry, I don't play them anymore. But I used to!" Not that I don't get my fair share of backhanded compliments on my work, like "Oh, yes, I'm a Dark Castle widow." But while the rest of the world is running around deciding which desktop publishing program does the best text wraparound, I'm happy in my little corner of the world coming up with programs that people use because they want to, not because they have to.

Games are all about having fun. How big should the explosion be? What should the timing be on a swinging rope? Is a Reptilon's skin blue or green? It's this kind of ridiculous problem solving that intrigues me, and that's why I'm content to continue until the fun stops.

Good Games

A good game must be the ultimate in user-friendly software. Players have to be able to sit down cold and start communicating in a nonverbal language they've probably never used before, or one that's derived from those of other games. The average play time of an arcade game is 90 seconds, so your interface has to be pretty quickly readable. A game has to seduce the player with its software because, after all, the player doesn't have any real need to play the game.

The biggest design concern and the most important question is always, "Is it fun?" Next, the designer aims to make the game "easy to learn, hard to master" — it has to present a challenge without being too frustrating. The designer must establish plateaus at intervals in the game so the player can enjoy some sense of achievement. The controls have to be simple, responsive and intuitive. A player must derive some abstract sense of enjoyment and be left with a reason to come back and try again. In other words, a game must be both enjoyable and addictive.

The Design Process

Most arcade-style action games today are developed by teams made up of designers, programmers, audio engineers and animators. Sometimes the disciplines overlap. In general, the first step is to decide on a game concept or theme. Then a course of action is planned to manifest that idea, and the work is begun.

Before development can get very far, the team must target the hardware. In the consumer market this is simply a matter of choosing from what's out there — the Nintendo, the PC, the Amiga, the ST, or if you feel like taking a risk, the Mac. In the coin-op industry the team determines what hardware is needed to display the game and then checks to see if any of the in-house hardwares fill the bill or can be modified to work. If nothing is available, a new hardware must be designed along with the game. In most cases the decision is primarily influenced by economic concerns. This is a business after all, and the ultimate question asked in targeting the hardware is "Will the end number of sales justify the development expense?"

In designing for a particular platform, the team must understand the limitations of hardware and also be able to maximize its capabilities. How much memory is available, how many pictures of what size can be displayed simultaneously, what are the restrictions dictated by processor speed? Working within the framework dictated by the answers to these questions, the team goes about the task of implementing their design.

The next two steps, graphics and programming, happen simultaneously. A program needs to be written to cause the events outlined by the design to happen, and graphics — at this point, they may be rough "place holders" for the final art — are needed to see if the program is working correctly. Usually this is also a time when many discoveries are made about the feasibility of various design elements.

2D

In a 2D, bitmapped (like the Mac) or stamp-based (like arcade games) environment, pictures are created and designed using a paint or an animation program. For the Dark Castle games I used SuperPaint and VideoWorks. For Escape from the Planet of the Robot Monsters I used RAD. The artist creates the graphics and saves them in a file format that can be accessed by the program.

Games are generally done in two layers — foreground, or character, and background or playfield. The foreground is where the action is. Whether it's a Kung Fu character, the hero in Dark Castle, or the car in Pole Position, the typical method of handling the player's representation on the screen is to animate it in the foreground on top of the playfield. Foreground character animation in a 2D environment is very similar to flip-book animation. Each animation, or motion object, is moved around on the screen as the program dictates and in response to the player's actions and reactions.

In addition to paint and animation tools, 3D modeling and CAD tools are used to help in the creation of the motion objects. To create the numerous pictures of the cars in each lane of RoadBlasters, I first modeled the cars on a 3D modeling system and then used utilities to take "snapshots" of the cars in different positions.

Another method of creating characters that's becoming more common is digitization. Either live-action figures or models are digitized and then saved in a format to be used by the program. MacGolf, William's NARC and Atari's Blasteroids are examples of the use of this technique.

The background is the theater in which the game takes place. For games that run on stamp-based and bitmapped hardware platforms, the backgrounds fall into two general categories: static and scrolling. The static playfield, as the name implies, does not move and is merely a drawing that is displayed on the screen and serves as a stage on which the action takes place.

Scrolling playfields are created in a "tile" format to facilitate quick shuffling between display RAM and disk or other memory locations. Tiles can be reused in different arrangements to vary the backgrounds without requiring extra storage space.

To help manage the 21 factory background

pictures in Escape, I used AutoCAD to design the tiles and arrange the tile layout. I would create each tile as a "block" in AutoCAD and insert it into the arrays that made up the factories. As I arranged and reused them, I made changes to the blocks. When I then updated a given block, all instances of that block would be automatically updated in place. This was very useful, as each factory background was equivalent to 14 screens high and 4 screens wide, and the only place I could view the factory as a whole was in AutoCAD. It took months of work to come up with an efficient set of tiles. But when I was done, all of the backgrounds in Escape had been done with just over 200 tiles.

3D

Most 3D games are simulations. MicroSoft's Flight Simulator and Atari's Hard Drivin' and I Robot are good examples. Using a 3D modeling program or CAD tool, or sometimes grid paper, the artist creates the graphics that are used in the game. An animation program changes the location of the object in the 3D space on the screen by changing the x, y and z dimensions.

Some 3D games like Hard Drivin' can also use 2D bitmaps in the background to save on polygons and to add detail.

Beneath the graphics, 2D and 3D games are basically the same — they are all pyramids of indirection. Pressing the start button branches the player into the game. Once in the game, players typically manipulate representations of themselves on the screen. After some moving around and decision making, a player eventually collides with another object, and the collision triggers a whole new series of events. The game continues until a set of rules is broken that causes a "game over."

JUNKO HOSHIZAWA

Depending upon the complexity of a game and the development time available, the team may create and use game editors to arrange various interactive components of the game. Playfield editors allow the arrangement of the tile backgrounds. Motion object editors arrange the layout of the foreground "characters." In Escape, I had both. First I would lay out the tile to make up a factory, and then I would go to the motion object editor and lay out the traffic patterns of the robots the player would have to fight.

During its development, every game is played. Throughout the development period the game is played by its creators and their associates. This is known as alpha testing. The next step is beta testing: the program is tested on the audience who will be using it. Beta testing gives the team feedback useful in tuning the difficulty of the game. It also lets them know how well players understand how to play. And it "shakes out" any bugs that the team has been subconsciously avoiding. Once testing is complete, the game goes to market.

Benefits of Interactive Computer Games

Despite the fact that I spend my life designing and creating things that basically waste people's time, I believe that the game-development environment is a growing ground for new concepts, tools and computer "personalities." VideoWorks and MusicWorks, two products I was instrumental in creating, were based on tools we at MacroMind used while we were in the arcade business. The Amiga personal computer was a direct outcome of the game industry, designed by people who were game creators. Steve Jobs worked at Atari on a game called Breakout. Silicon Beach Software, now a leader in Macintosh graphics programs, put their name on the map by developing and marketing computer games. And it could be said that HyperCard is a gamelike front end for what could have remained a boring data-retrieval system.

Where Are Electronic Games Going?

As in the early days of the film industry, standardization seems slow in coming. We're still at a stage analogous to establishing how far apart the sprocket holes should be and where the soundtrack should go. Standardization of the playback technology will lead to increased distribution, and from there to lower prices, greater sales and bigger profits. As more money is made, creative differences will move to the forefront as a method of product distinction, and more artistic talent will be drawn into the industry. Big productions will become economically feasible, and a more refined interactive entertainment will emerge.

As the market widens, interactive software will be part of simultaneous releases of theatrical products. For better or worse, movies like *Batman* will come out not only on film and in paperback form, but also as interactive software. Perhaps movies themselves will become interactive. Kids who grew up with games will become the target consumers. This use of interactive software in the marketing of theatrical releases is already happening to some extent with the Nintendo.

In the not-here-yet category I see a number of possibilities: subscription games in which the player buys a subscription to a game, and a publisher releases monthly updates; modular games, in which a player builds up a character and can carry it around to friends' computers. As artificial intelligence becomes more widespread, I can envision games that learn you while you learn them. Handheld flat-screen technologies will open the door to products like interactive comic books. Technologies like CDI will allow massive amounts of data to be stored and accessed quickly to greatly expand the horizons of interactive entertainment.

In the meantime, I'm happy in the small corner of the world inhabited by video game designers and creators. Computer games are the pop songs of the microprocessor juke box. It's a hit-and-miss industry with many ups and downs, but it's exciting. As it stands now, the main arcade audience is 14-year-old males, and the main home audience is 30-year-old males. In time we'll be able to afford to try to capture other markets. I'll be there when it happens, and I'll still be having fun, making fun.

Mark Stephen Pierce is currently a Designer/Animator at Atari Games Inc. in Milpitas, California, where he has created RoadBlasters, Escape from the Planet of the Robot Monsters and the in-house paint/animation tool called RAD. In the Macintosh market he is known for his design/animation work on VideoWorks, Dark Castle and Beyond Dark Castle. He has also had a part in developing a number of other software entertainment products.

COMPUTER-AIDED FASHION DESIGN

■ *by Linda Freedman*

New advances in CAD/CAM (Computer-Aided Design/Computer-Aided Manufacturing) technology are changing the way textiles and garments are designed and manufactured all over the world. And, new "quick response" methods that allow instant reaction to changes in material and fashion trends, are rapidly revolutionizing the industry. To accelerate the design cycle designers and manufacturers have to monitor trends at the source and then respond quickly. With CAD systems, a number of forward-thinking design and manufacturing houses have shortened the response cycle from six months to less than two weeks, establishing a tremendous competitive edge. Paul Zurlini of Weekend Exercise, the premiere activewear company whose lines include Marika, Baryshnikov and Jazzercise, discusses how new technologies can save precious time. "In the past, we hand-illustrated our silhouettes and croques. But now we can accomplish even the very complicated designs that were excessively time-consuming to design or paint by hand. The new versions of designs that used to take us days to prepare now take one hour."

Draping Technology

Traditionally, sample-making costs have been an expensive part of most operations. During the design process, a sample garment is produced so that decision makers can visualize a garment design before they set up production. This means designing, creating the pattern, cutting and sewing a finished garment. For textile design this involves sending a print to a dye house, or producing the finished fabric. Many samples are made before a final style is approved. Now, with new draping technology a designer can simulate how a garment will look in its finished form. By mapping the surface of the garment and manipulating lighting and other special effects, virtually any simulation can be achieved, including fabric folds, highlights, shadows, weave and fabric texture. David Szatkowski of STYL-LAND, a large sportswear company with well known lines like Pacific Coast Highway, discusses drape technology. "We already see the expansive uses of this remarkable technology to visualize a garment

LIFESTYLE

JUNKO HOSHIZAWA

These garments from Weekend Exercise's Baryshnikov line were designed from start to finish with ModaCAD software.

before we make it. At our last photo shoot we were unhappy with the shorts our male model was wearing. With ModaDRAPE™, we are now able to redrape the shorts on the computer, and avoid re-shooting."

Data Communications and Manufacturing

Fashion has become a global industry with manufacturing in remote overseas sites. Data files and images can be sent over domestic and international phone lines through EDI (Electronic Data Interchange) and EGI (Electronic Graphics Interchange). New design or pattern-making information can be sent from a design showroom in New York to the pattern-making and grading operation in South Carolina, and the marker data sent to a remote offshore manufacturing facility. Data can be communicated between each operation, whether around the world or around the corner.

The secret of successful CAD/CAM and CIM (Computer-Integrated Manufacturing) is integrating the design, development and manufacturing efforts. Shirley Bradford, President of CAPS, operates a computerized contract pattern-making and grading-and-marking operation with large-volume clients like The Gap, Banana Republic, and Victor Costa. "As one of the original and leading CAD/CAM facilities, we have been a great promoter of computer technology for the garment industry. We are convinced that designers and manufacturers who don't embrace CAD technologies will be left behind."

An increasing number of retail operations are investing in CAD systems to support a new trend in bringing design and manufacturing operations in-house. Advances in CAD have made it possible for garment design houses to gain more control over fabric design, as well.

Programs with PostScript capabilities like Aldus Freehand and Adobe Illustrator, originally developed for desktop publishing, are now being used in conjunction with fashion design programs. LetraStudio, with its extensive selection of type styles and fonts, is used for finished lettering.

New Design Trends

Industry analysts are eager to know whether the move to computer technology is creating new design trends. According to Szatkowski, "We are looking to enhance our designers' creativity, and to reduce the time required to conceptualize our designs. So much design work can be accomplished right on-screen."

Freelance designer, Araceli Kopiloff agrees that the computer presents new design opportunities. "The tedium of hand-styling and colorizing did not allow me to be as creative as I am now with the aid of a computer. My overall design process no longer involves the busy work of rendering and redrawing to make style and color changes. I can also rapidly visualize on the screen what I have in my mind which makes it easier to get my concept across in a presentation to a prospective client." Paul Zurlini of Weekend Exercise adds, "We use CAD in creating finished presentations, which makes decision making so much easier. Designing on a computer gives us creative time to experiment with color and special effects. We now can initiate 100 different styles and patterns very quickly. In the past there were time limits to creativity." With the new tools of the industry, realistic garments draped on models are replacing rough sketches and swatch books.

CAD is providing designers with limitless design possibilities and new creative options. We can only imagine where our designers will lead us with this new technology.

Linda Freedman is Director of Marketing of ModaCAD, a developer of fashion design and manufacturing software.

Linda Freedman/
ModaCAD
1954 Cotner Avenue
Los Angeles, CA 90025
213-312-6632

This portion of the Baryshnikov "floral print" was actually a 30 x 30-inch repeat (six separate screens) created with ModaCAD. The print was scaled down and dropped into the garment silhouettes. The entire design process was accomplished in just a couple of days.

With CDI Texture Mapping™ portions of a garment can undergo instant changes in color, print or texture.

■ *Willard Van De Bogart*

FASHIONABLE COMPUTER WEAR

A question I often ask fashion designers who work on CAD/CAM systems is how the computer as a design tool will alter the way our clothes will look in the 21st century. Most designers say it won't, but I disagree. For one thing, we're going to see fashions changing faster. Traditionally designers flocked to the fashion runway shows in Paris with sketch pads in hand, to try to render the fleeting looks that passed them by. Then they would hop on a plane back to New York City and develop ideas in full color so that buyers of the major stores could determine whether they should go to manufacturing. Often hundreds of hours would be spent drawing multicolor plaids or developing new prints that would then have to be delivered to the mills where many more weeks would be spent dying the textiles and yarns and then experimenting with the weaves to come as close as they could to the designers' art work. An entire year would be spent designing and manufacturing the garments for one season's line of clothes. Believe it or not, what once used to take a year now takes only weeks, and the fashion industry is involved in one of the most dramatic transitions in its long history.

LIFESTYLE

JUNKO HOSHIZAWA

This print was designed on-screen with CDI Prints™ and then applied to the scanned image.

Designers Revolt

The apparel industry was one of the last major industries to fully embrace the computer as a design tool. And when CAD packages were first used for fashion design, the designer's goal was to draw something on the computer that looked like the work that used to be done by hand. At first, acceptance of the computer was limited. Some designers revolted. Fashion was fabrics and models, and jumping from one airport to another trying to chase the latest trend wherever it might be found. But with the development of faster machines, mass storage, bigger screens with higher resolution, scanners, 16 million colors, inkjet printers, disk cameras and digitizing tablets, computer-based design systems have made their way into the fashion industry. Systems with names like Gerber, Lectra, CDI Technologies Inc., Investronica, Microdynamics, ModaCAD, Haberdash, Ormus, Vision, Penelope and Preview were too good to resist. The family of computer systems for fashion design tripled in less than two years. A fashion designer will soon be able to create a full 3D model, drape any kind of fabric on that model, immediately make a pattern from that draped fabric and send it electronically to a computerized laser cutting machine where a machine-vision robot will pick up the cut pieces and feed them to a computerized sewing machine. Then a robot will pick up the finished garment, put it in a carton and then place it on a truck or a plane. And all of this will take just two weeks!

Unlimited Ideas

But now let's back up a bit and focus in the present on the front end or the data input level. No longer is the designer limited to looking for fashion ideas in the real world. They can be found in the interaction of mind and computer. All aspects of fashion can be changed immediately with the touch of a key, the push of a mouse, the movement of a stylus, the stroke of a function key or the click-and-drag of a pull-down menu. Of course it takes time to become adept at using a system like this. Some systems take as long as eight months to master.

Apparel manufacturers typically use only about 10 percent of the functions available in these systems. The primary reason for this is not the learning curve, but economics. If an apparel manufacturer is producing only eight colors in its line with only two variations in the basic style, then it's understandable that CAD systems aren't fully utilized. Also, since some CAD systems are linked to or integrated with CAM systems, the designer also has to know if the CAM can produce what is being designed on the CAD.

Computers Design

But with or without the CAM adjunct, CAD has a lot to offer to the fashion designer. A series of fashion sketches that would take a few hours to prepare by hand takes only a few minutes on the computer. A full range of colors can be seen in seconds. A new silhouette can be seen instantly. Without a single cut into the fabric, the finest silk can be draped over an on-screen mannequin in order to see design and cloth work together. Plush velvet belts, snakeskin trim and other accessories, stored in the computer system, can be explored without waste. As soon as the designer learns what the system can do, the creative process emerges.

Probably one of the most significant peripherals in a CAD system is the color scanner. These scanners are appropriately called capture devices. A designer can go outside and grab up a bunch of fall leaves, place them on the scanner, and behold the rich variation of fall foliage on the computer screen. If a grid is placed over the image, she can see what a sweater would look like with these shapes and colors. She may want to select only one corner of a leaf and make repeat images out of it for a new printed fabric.

With an optical disk peripheral, a designer can scan in a picture of a dress from the 14th century, scan in an original sketch, and work with the two simultaneously. If he likes a button or a piece of lace from the 14th century dress, it can be isolated with a cut-and-paste technique and put into a library of details to be used now or later.

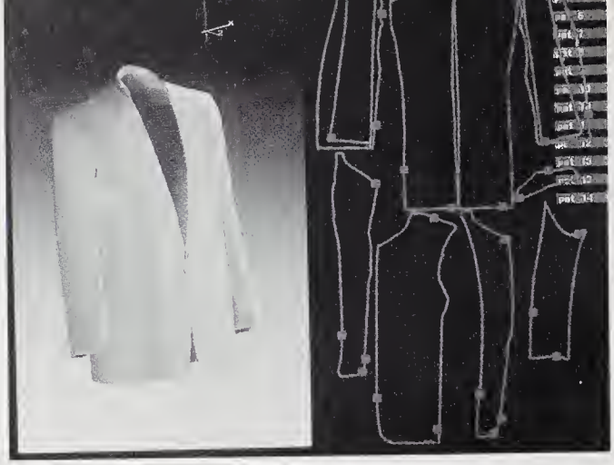
As a further example of the flexibility the computer provides, let's consider a shirt collar. A collar is a polygon. If the cursor is placed on any of the control points on that polygon, it can be elongated in any direction. It's possible to elongate the tip of the collar all the way to the waist if you like. Then you can experiment some more. The polygon tool alone has provided a new design alternative. Perhaps nobody would buy a shirt with a collar that extended the full length of the shirt, but the fact that it can be visualized is very significant.

The 3D gown was bitmapped with florals, showing the contour mapping technique. Photo by Willard Van De Bogart.

Computers Affect Fashion

Our clothes are subject to many influences other than fashion houses. Many subcultures have influenced fashion as well. When Humphrey Bogart played in the film *Casablanca*, the fedora became popular. When the Beatles went to India, they came back with the Nehru jacket. When Buzz Aldrin walked on the moon, the jumpsuit came into vogue. When Madonna started making fashion videos, black lace took on a new sensual appeal. When Tom Cruise played in the film *Top Gun*, the flight jacket became popular.

The list of popular influences on fashion is endless. It's naive to think that the computer isn't also having its effect on fashion. Esprit of



These flattened pattern pieces were generated automatically from the 3D suit coat created with CDI 3D/ Engineering™.

San Francisco creates many new geometrics in their computer design department. Itokin, Japan's largest department store, developed the Mina line with the aid of the computer. The Paris designer Elizabeth De Senneville uses computer graphic prints designed on the Quantel Paint Box for her lines. Many of the sweater designs from Jantzen are designed on a CAD system.

A New Sense of Freedom

In the CAM realm, synthetic fibers are continually being invented, weaving techniques are continually being developed, and construction techniques utilizing bonding and fusing are being evolved. At present, the new sense of freedom that computers can provide to designers is ahead of the market. Naturally, buyers are concerned whether a garment will sell or not. This consumer constraint has held back a number of CAD-based designs. Many new and exciting designs have come and gone without ever seeing the racks. However, all of this is going to change. When a new Ford Probe zips by you on the freeway, you're looking at a design developed on the computer. When a new circular glass building is erected, you're looking at the result of another computer design feat. When a new shampoo bottle hits the shelves, chances are the computer played a role in its creation. Now the time is arriving when a distinctive look is emerging for fashion that has that CAD look.

The CAD look has a lot to do with shapes,details, colors and textile design. The introduction of new synthetic fibers is bringing many new clothing options to the retail outlets. Spandex and polyester are now the rage. Bicycle racing suits are skin tight and brightly colored and look very aerodynamic. Imagine a spandex suit with leather trim or an 18-gauge sweater that wraps in three directions and is composed of a melange of four or five yarn types. The unique aspect to fabric is its weight and how it stretches. New fabrics have very distinct material properties, and it can take days to determine how to cut a new material to make it conform to the body. Today software engineers have made it possible to drape any fabric on a mannequin in 3D on the computer. Not only can the system drape the fabric, it can also create the fabric on the computer screen thread by thread. The specific material properties of the fabric can then be worked into any shape and stretched in any direction. The ability to have a library of fabrics and trims on hand in an optical storage system is revolutionary for the designer. What computerized fabric draping does for the exterior of the garment, "layering" does for inner linings and padding that affect the outer shape. Once these inner construction elements are designed and in place, they can be hidden from view and a newly selected fabric can be draped over the inner construction.

Specialized Clothes

Ergonomically speaking, the clothes we're presently wearing may not be the best-suited for the way our body moves. Large people could probably use more flexibility in their clothes. Older people as well as the very young need clothes that are easier to put on. Handicapped people need clothes to assist them. Space technicians need clothes that support them in their weightless environment. Visualizing solutions to these unique clothing needs is now possible with fashion CAD systems.

Clothes That Fit

On the fashion-design horizon is phase-measuring profilometry (PMP). This technology can be used to optically scan a standing person in less than a second and produce a 360-degree model on-screen. Imagine being able to measure from such a model and then make made-to-measure garments that take into account a person' s unique body shape. When the PMP system is applied to the foot, all the necessary digital information will then be ready for the robotic shoe manufacturer, and never again will you have to suffer with a shoe that doesn't fit. The PMP can be updated regularly for each member of the family.

Through new ways to send CAD images via electronic graphics interchange (EGI), design houses will be able to compare images worldwide. The separation of the apparel manufacturer, the retail store and the consumer is ending. The most significant event that will occur for the consumer will be appropriate styling and production of apparel to meet particular needs. It will not be inconceivable for a person at home to design a garment on the computer using the apparel database from their favorite speciality store, through EGI communicate with the in-store CAD designer for all the refinements and within a matter of days have the desired garment delivered by express mail.

One Woman's Vision of the 21st Century

Back to the original question: How will computer-aided-design for the fashion designer alter the way we'll look in the 21st century? In New York City, Lucy Harley, one of the top knit designers in the world, has an answer. Harley has no fewer than three CAD systems in her studio and has made some interesting predictions about fashion. She feels there are four types of clothes that will make up our wardrobe in the future: Mental, Physical, Spiritual and Leisure; and colors will be divided into atonal color families. Fashion of the future, she feels, "will not be designated as French, Italian or American, but instead as clothes to wear for different earthly activities. The ethnic boundaries of clothes will be torn down as travel and communication increase to warp speed and Third World countries are propelled into the 21st century. Silhouette styling will be a collection of the best ideas of futurists throughout this century, implemented with the latest technology. Stretch will be a factor in almost every fabrication as the demand for performance and neatness increases. Comfort in our clothes, both mental and physical, will also be a prime factor. Fabrics with a brushed inside and smooth outside will be widely accepted for comfort. The predicting of seasonal trends is coming to an end, to be replaced by seasonal updates and the evaluation of the evolution of fiber, chemical makeup, production, finishing and construction technology, as well as how color is used and worn." ●

Willard Van De Bogart is Executive Director of Visual Futures, a retail consulting and market research design studio specializing in the application of CAD computer graphics and electronic imaging for the design industries, with special focus on apparel design.

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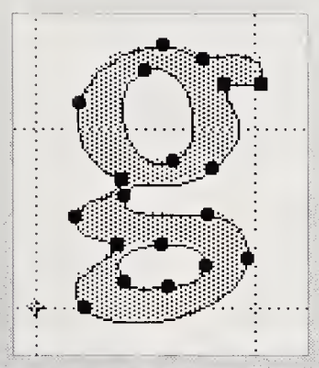

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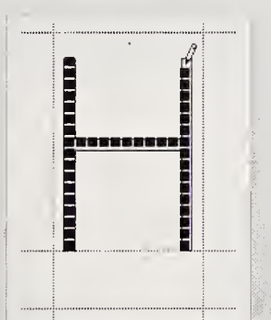

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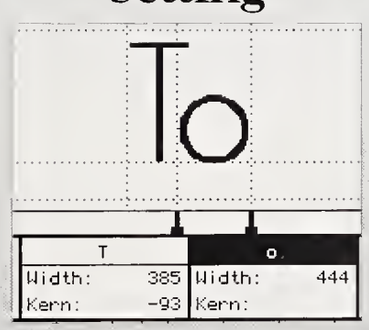

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LOOK AND FEEL

■ *by Linnea Dayton*

In a few short years, "personal" computers have spread out from the American home in all directions, gained in power and then migrated back into the household, to have an enormous effect on our lifestyles. They developed personalities that made them fun to interact with (game machines) and acquired programs (household budgeting and word processing) that justified their purchase to those who couldn't quite tolerate the expense for the sake of fun or curiosity alone. Transformed, they migrated into the business world and hybridized with their more serious counterparts. They got a lot faster and smarter. Soon, user friendly and with graphics power, the little plastic and silicon fascinators eked out a new niche for themselves — "desktop publishing" we called it, and all its associated crafts.

Standardization and portability allowed us to carry them (or their disks) back and forth from work. Many of us found that with enough peripherals, we could set up a workstation and work at home — constantly. We dedicated or built rooms to accommodate our equipment. All over America, house cleaners got to know the drill for cleaning the Macintosh room — not a single outlet available to plug in a vacuum cleaner, and "Don't move the piles of papers!"

Now, with all the power we find on the desktop, it's hard to resist the temptation to become "human doings," to turn into tweak people — we're beginning to develop occupational symptoms.

Back Pain

Back problems can be aggravated when we spend long periods in front of the monitor, concentrating intensely and drowning out the normal biofeedback signals of body abuse, not even noticing that we're throwing S-curves into our spines. We need to get up and stretch once in a while, to exercise, to do some creative thinking about work habits — and furniture. There are chairs to kneel on, for example, and sectioned desks that drop the keyboard lower than normal desk height. Some of us have styled our own personal workstations to integrate pc's — "desks" that mount the screen in the flat or tilted table surface, mimicking the traditional drawing board as closely as possible; pedestals that place the computer high enough for stand-up work and adjustable chairs that grow taller so it's still possible to work sitting down. Mounting the hardware so the center of the monitor is at eye level is a relatively easy and inexpensive way to draw the body into a posture that keeps the back straight.

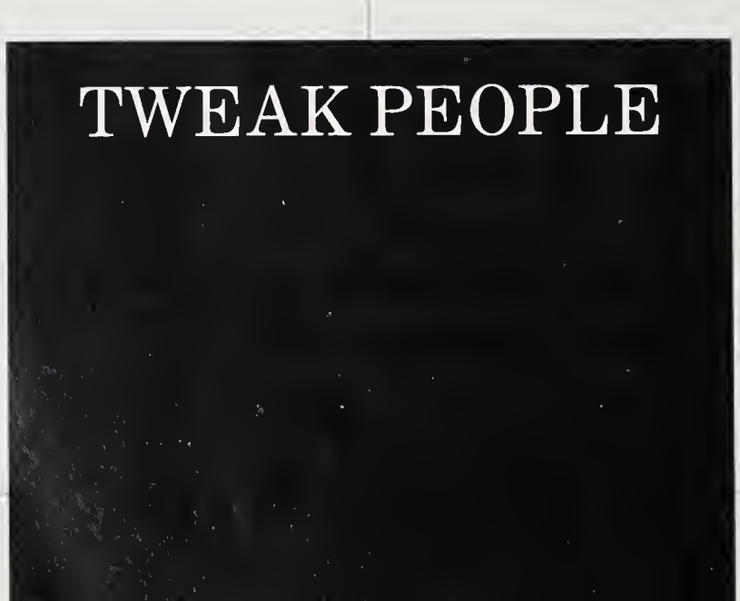
Eyestrain

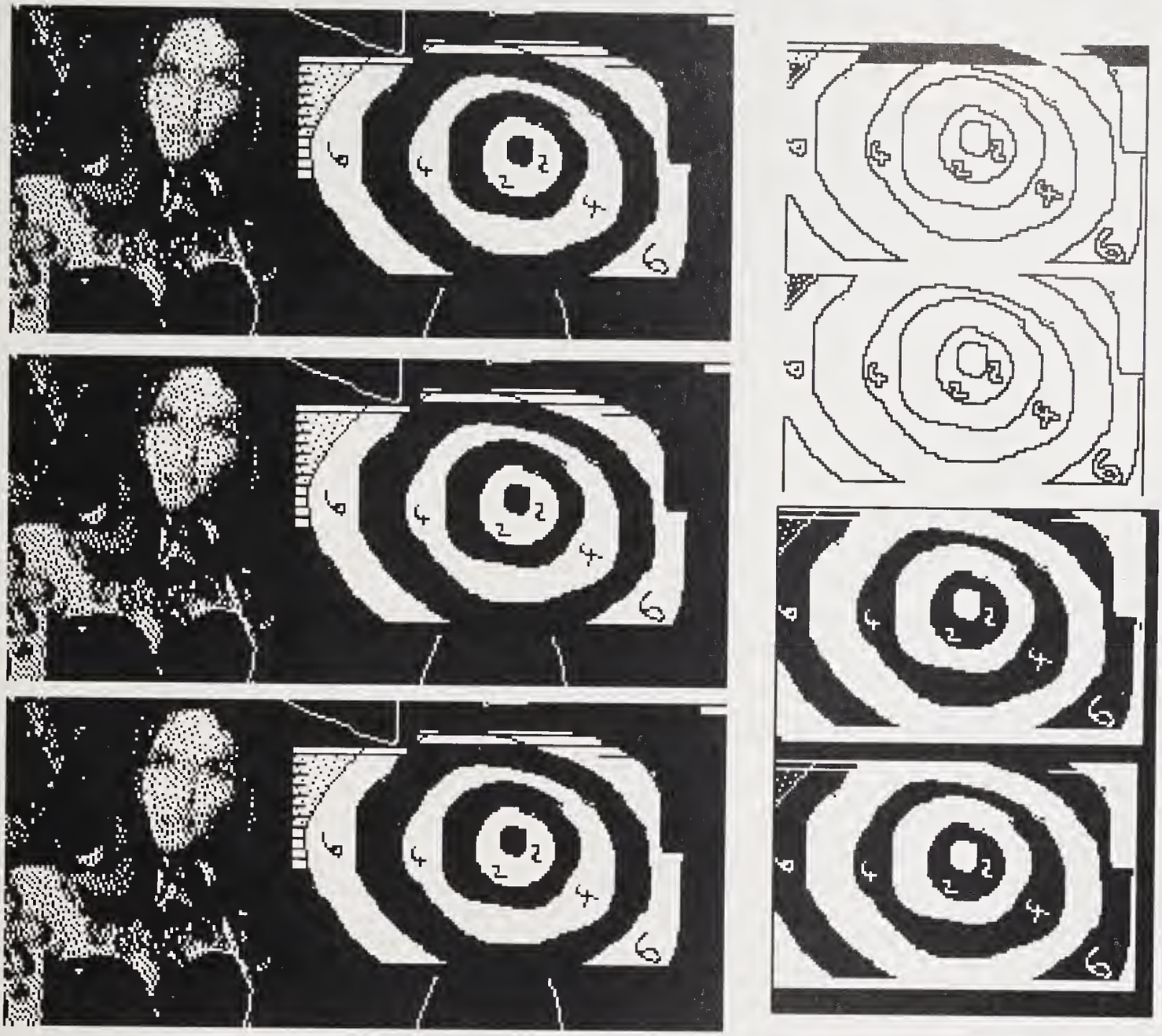
People who wear glasses (especially bifocals) may need a special pair for using the computer. If you measure the distance from your eyes to the screen in your normal working posture, an optometrist can prescribe properly focused lenses. There are two keys to making this work right. First, *measure* the distance — the prescription will allow several inches of leeway, of course, but there's also a strong tendency to underestimate the distance. Second, if you work from copy or from sketches, you can use a the copy stand set at the same distance as the screen. A Curtis Clip (available at many computer stores and through mail-order houses) is a copy-holding arm that attaches to the top of the monitor with Velcro and extends to one side. (It comes with two stick-on strips for the monitor so you can change its position to extend either left or right).

Some optometrists recommend focus-change exercises or eye relaxation techniques. Others simply recommend a respite. When I asked my optometrist if there was something I should be doing for my eyes because of my computer work, she said, "Yes. Close them."

Mouse Arm

Artists and others involved in dtp tend to be a bit more intense in their use of the mouse than other folks, and mouse arm is a symptom to watch out for. It comes in several forms. To Michael Waitsman of Synthesis Concepts in Chicago, the upper arm pain that developed over the 1984 Christmas holiday season (when a friend had loaned him a brand-new Macintosh and he had to completely explore it in the week duration of the loan) it was an early signal to watch out. Mike Saenz, one of the founders of MacroMind and creator of the Mac-generated comic series *Shatter* and more recently the full-color desktopped *Iron Man* graphic novel, developed a serious case of mouse arm. Excruciating pain in his arm and shoulder resulted from countless hours, day in day out, staring at the screen with his hand clenching the mouse. David Doty, mastermind of *The Page*, has switched from mouse to trackball to correct mouse-related shoulder problems. A recent *Macworld* article reported on carpal tunnel syndrome, irreversible damage to the nerves of the hand. And I've learned to recognize a persistent tingling between elbow and the tips of my little and ring fingers as a signal to cut back on the number of hours spent in communion with my silicon and plastic associate, and to modify my workstation to relieve





PAMELA HOBBS

the pressure on the ulnar nerve where it crosses the heel of the mouse hand.

unnel Vision

Another computrogenic symptom I suffer from sometimes is tunnel vision — a kind of mindlock. I sit mesmerized at the Macintosh while the plants go unwatered, the kettle boils dry or a spectacular sunset goes unobserved.

"Your computer is so small," says my mother, visiting from Florida. She's referring, I think, to my Mac Plus's "footprint" and the size of its screen.

"Really?" I think to myself. Sometimes it seems just enormous to me."

Although now and then I long for a IIcx with a large, brighter-than-living color screen, I sometimes think that the fact that my computer operates in black-and-white and subtends a reasonably small visual arc are the only things that help me keep desktopping in any kind of perspective at all. That and the cost — a Mac IIcx would cost more than a three-week trip to Africa, for example, or Moscow or Nepal or New Guinea.

Virtual reality is truly exciting, but I need real reality once in a while. I seem to need to get electronically out of touch to get back *in* touch. I have to get outside the scope of the myriad forms of electronic input that define my everyday picture of the world, from my Mac to computerized bills to TV news to how-to video loops at the hardware store to automated teller machines to the telephone — to really clear my head and see where the technology I live with fits into the big picture.

So I'll forgo the upgrade for now. And anyway, if I spent all that money for a IIcx, I might not have enough left for the computer of my dreams — the 6-pound battery-powered laptop that I can carry with me anywhere.

"Identify the MTQ reader"

That's what they told me. I stood behind the one-way glass, drinking bad coffee and studying the faces. A woman in black , a bright-eyed kid, a slick corporation man. My spirits sank. I couldn't do it. For one thing, I knew the line-up was a scam. For another, it could have been any of them. "Look," I said, "Everyone in Mac programming reads MTQ — in-house programmers for corporations and universities; PostScript, graphics, and applications programmers; commercial developers, even students. I can't just pick one."

"We know that," they snapped, "We just wanted to see if you did."

I turned to go. "Wait," they said. Did I know how to handle memory crunches without interrupting program flow? "Sure," I said, "no sweat. The grow zone can—" I broke off. They were smiling.

"There's only one place to read about that," they said, "MTQ. Step this way."

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VERBUM BACK ISSUES

1.1 Early 1987 The first *Verbum*, all black-and-white, 300 dpi laser output, beautifully printed on 70 lb. Sequoia Matte. This epic launch of the *Verbum* journal, designed with *PageMaker 1.2* by John Odam, inspired designers worldwide. • Featured artists: Avant-garde concept artist Paul Rutkovsky with redigitized illustrations, Mike Swartzbeck's trailblazing composite illustrations from scanned images, excerpts from David Brunn's *Irish Book of Invasion* using innovative digital photography techniques. • Columns: Michael Singleton's The Artist's Toolbox offers a primer on bitmapped graphics with a feature-by-feature comparison of leading programs. Behind the Scenes by Kim Criswell responds to the state of the industry circa January, 1987 with "Big World, MacWorld." "Painting by Numbers" by Tony Smith introduces the PostScript page description language. John Odam's "First Contact" takes *Fontographer* through its paces.

1.2 Mid-1987 This issue was produced with *ReadySetGo! 3*, 1270 dpi Lino imagesetter output, and digital color separations. • Features: "Amiga Video" looks at the unfolding possibilities of the animated Amiga. "Painting as Spiritual Discipline" by Jack Davis shares the artist's experiences with Japan's elegant painting program, *Mac Calligraphy*. "Big Blue Art" by Mike Kelly profiles the world of IBM graphics from the *Verbum* point of view. "Lino Seps" by Mike Saenz explores the new wave of digital color separation, featuring Marvel Comics' new *Iron Man* cover created by Saenz. "Digital Studies" by Australian Mac-artist Malcolm Thain captures the grace of passive and active female forms. • The usual "Gallery" of unusually inspired pieces. • Columns: The Artist's Toolbox compares PostScript illustration programs *Adobe Illustrator* and *CricketDraw* as well as two font editors and four special effects programs. "Desktop Techniques" by John Baxter looks at parallels between low- and high-tech graphics tools.

1.3 Late 1987 The third *Verbum* was produced with *PageMaker 2.0*. More pages, more color, a very dense issue, the first to be sold in quantity on the newsstands. • Features: April Greiman's "Pacific Wave" sculpture/exhibit in Venice, Italy. "Desktop Video." "Continuum" by Linnea Dayton explores the future of *Verbum*. Dominique de Bardonneche-Berglund, Europe's digital painter of renown. Jack Davis explores *ImageStudio*. "Creative Waveforms" by Neal Fox focuses on music. • Columns: Tony Smith on 3-D with PostScript. The Artist's Toolbox compares object-oriented programs on the Mac. John Odam's First Contact treats *Adobe Illustrator*, including a color piece. Behind Scenes covers people and industry news of note.

2.1 Winter/Spring 1988 The first color cover features an *Illustrator 88* piece by John Odam, digitally separated. Ever more color and new columns: "Against the Grain" by Steve Hannaford offers a practical counterpoint to *Verbum's* creative excitement, with technical/economic guidance. "Stackware Party" by Linnea Dayton reviews artistic HyperCard stacks. • Features: Lawrence Kaplan's "HotTech" prints, "The Fine Art of Dot-Matrix Printing" by Nira, "PC 3D Showcase" by Jack Davis, "Color Output Options" by Erfert Nielson. • Columns: John Odam's "First Contact" explores Aldus *FreeHand* with color illustrations, all digitally separated.

2.2 Summer 1988 *Verbum's* first cover theme is "Fashion" with a Jack Davis cover illustration done in Adobe *Illustrator*, and a major article on PC Fashion Design. • Other features include: "Mel Ristau's Electroglyphs" - iconic PostScript illustrations, "Georgeanne Deen's Rock and Rolling Amiga," "Sound Sampling Sensation" by Neal Fox and a how-to on shooting slides off your high-resolution monitor. • Columns: "Against the Grain" gets to the "bottom lino" of the imagesetting business; "First Contact" treats *Illustrator 88*.

SOLD OUT

2.3 Fall 1988 "Space" concept issue features a survey of Architectural CADD apps on the Mac and IBM-pc, with a "Living Space" gallery in kind. Space theme is also followed with an "Outer Space" gallery of cosmic visions by Ron Cobb and William Lombardo. The regular ("Art Space") gallery features landmark *PixelPaint* works by Dominique De Bardonneche-Berglund, Bert Monroy and Ikeda Tomoyo, digitally separated with *PixelPaint 2.0*. Nicholas Mac Connell and Linnea Dayton travel to Inner Space with "Through the Silicon Looking Glass," an exploration of pcs as mind machines. •Columns: John Odam experiments with *PixelPaint* (all digital seps). Against the Grain takes a hard look at digital color seps.

3.1 Winter 1989 Special issue on "The Word" explores writing, editing, publishing and typography, with Jack Davis' "Initial FX" on special effect initial caps, Mike Kelly's "Grammar and Style Checkers," a parody on "Third-Generation Software for Writers" by Michael Rossman and the first *Verbum* interview with the intellectual program *Racter*. • The Gallery features image-laden poetry and poetic images. • Columns: John Odam's First Contact takes a second look at *Fontographer* and font design. Steve Hannaford covers the font explosion and industry trends for typography.

3.2 Spring 1989 "4D" issue focuses on *movement* in pc art: Animation, MIDI-Laser Performance Art, The Telemorphic Future, HyperAnimation, Interactive Artistry • Verbum Interview with Todd Rundgren and David Levine. Look and Feel makes a "Reality Check." Against the Grain tackles Multimedia. New Frontier Products emphasizes 4D • The "HyperGallery" features HyperCard art and the "4D Gallery" showcases video visions • Like the previous two issues, 3.2 includes many digital color separations and was produced with *PageMaker 3.01*.

PRODUCTS

Verbum Digital Type Poster Designed by Jack Davis and Susan Merritt, this deluxe five-color, 17" x 22" poster showcases the variety of digital type effects possible on the Macintosh. It was produced on a Mac II with *PageMaker 3.0*, output on a Linotronic L-300 and printed on a 100 lb. coated sheet. The text explains the history of initial caps in publishing, and how each sample letter was created. A framable "illuminated manuscript" for every electronic design studio. *Limited edition of 2000. Shipped in capped tube.* **$10.00 postpaid.**

Verbum Stack 1.5 1988 update of the seed of a hypermedia journal. Packed with art, it has received rave reviews for design innovation. All registered owners will receive notice of the first module, which will contain a PC Art Resources database, the Hypergallery of innovative creative works and other trailblazing features. **$10.00 postpaid** (registered owners send $4.00 for update).

Making Art on the Macintosh II by Michael Gosney and Linnea Dayton. Written by the editors of Verbum, this book is the comprehensive reference for graphics on the Mac II. All major software and hardware products are covered. Processes are described and shown with extensive galleries of creative works from top artists and designers. The book features a 16-page color signature packed with inspiring art samples and informative captions. An invaluable guide for all Mac owners. 336 pages, **$22.95** (plus $4.00 shipping/handling).

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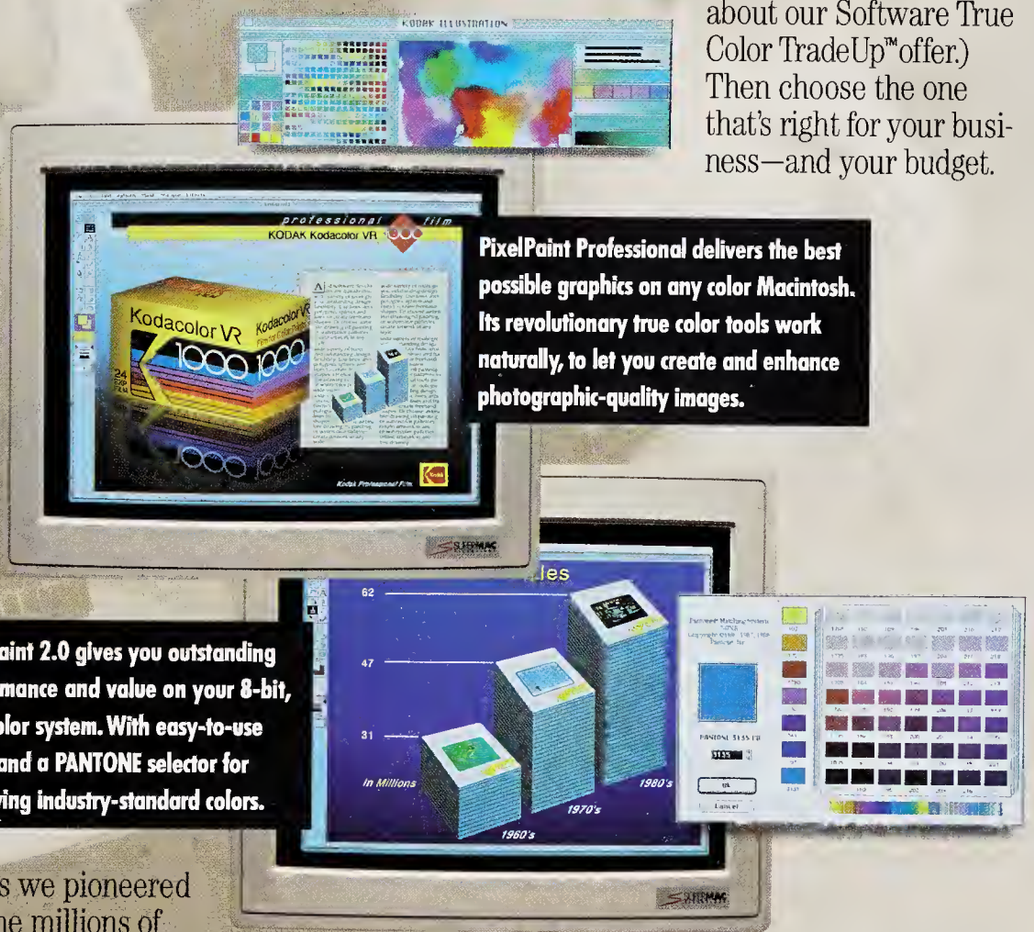

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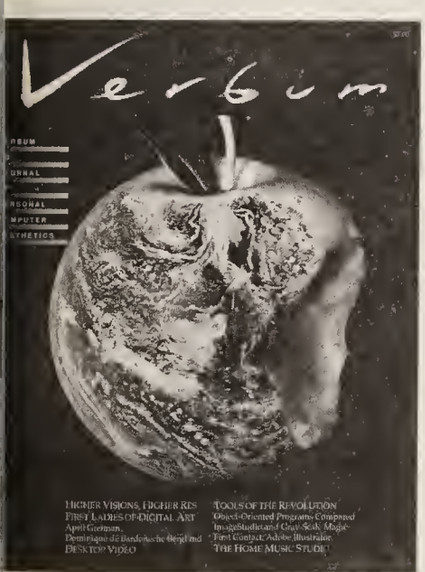

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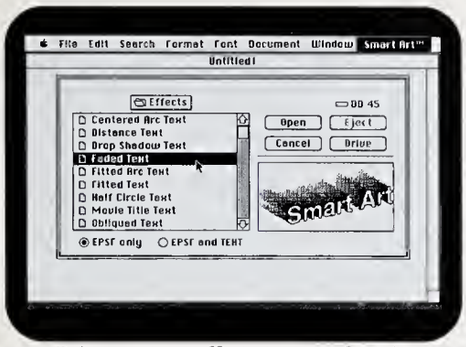

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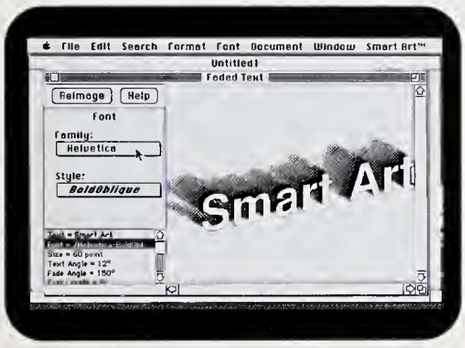

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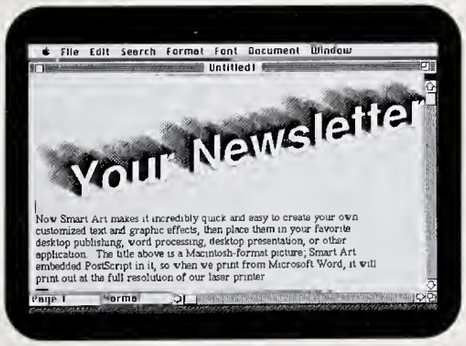

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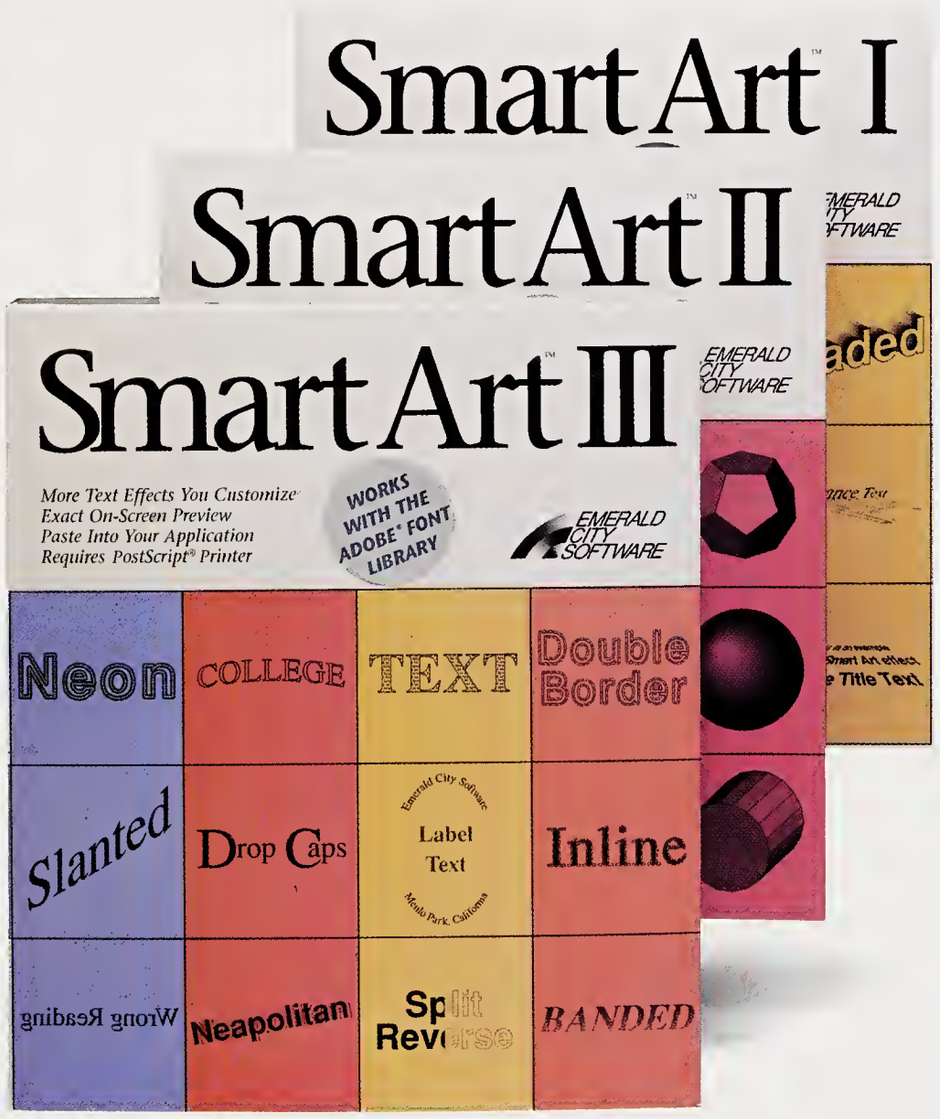

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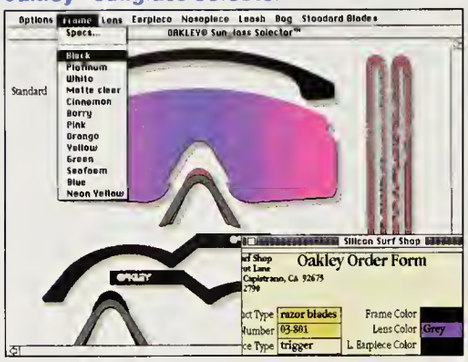

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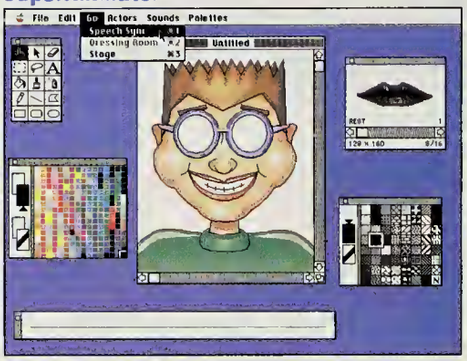
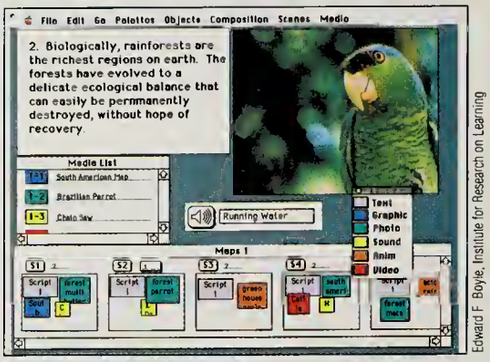


Joseph Matthews, Bright Star Technology

SuperAnimator is a toolkit for creating animated "agents" with synchronized sound. A commercial product created in SuperCard, it incorporates the elements of a traditional Macintosh® application.

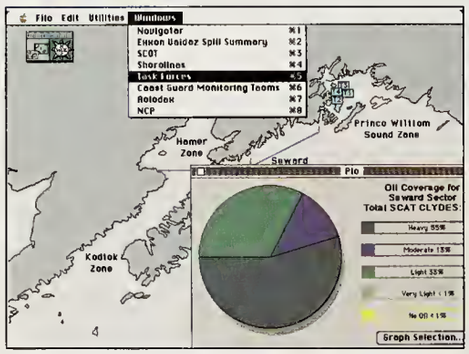
MediaWorks



Edward F. Boyle, Institute for Research on Learning

This multimedia composition environment was created as an Apple Classroom of Tomorrow project to allow 12-year-olds to create their own educational applications by combining information from a variety of sources.

CAMEO Valdez



Concept and Graphics: National Oceanographic and Atmospheric Administration and Gerwest Systems. Programming: Peter C. Honebein

NOAA and the U.S. Coast Guard monitored the Exxon Valdez oil spill cleanup and conducted daily briefings using this interactive information system that combines maps, graphs and databases.

The "Guernica" Project©

The Guernica Project creative team: Robert Abel, Allen DeBevoise, Jonathan Gibson, Jerry Hesketh, Eric Marin, Morgan Newman

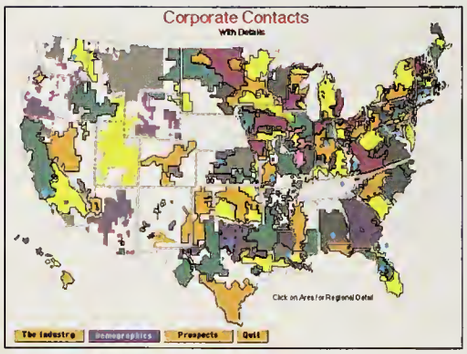
This stunning graphical interface is the interactive front end to a multimedia database related to Picasso's famous painting. Starting from *Guernica*, users can explore nearly any path of association imaginable.

Cardiac Imaging

C. Carl Jaffe, MD & Patrick J. Lynch, MS, Yale University School of Medicine

This interactive medical education project makes use of color graphics, interactive video, digitized sound and images created in Super 3D™ to teach residents and clinical staff at Yale University School of Medicine.

Marketing Strategy Planner



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This hypermedia information system was designed for boardroom presentations and strategic analysis. By clicking on the graphics, speakers can pull up relevant data and analyze it quickly in response to questions.

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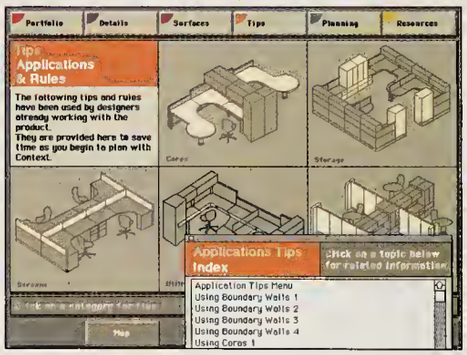
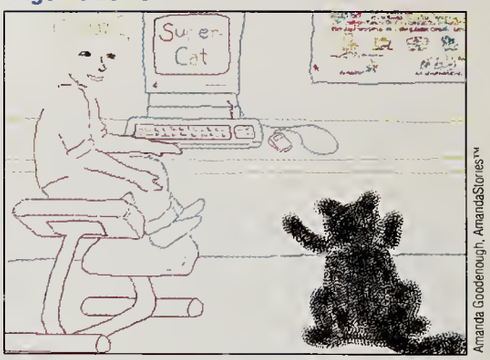


Creative Interactive Media

Steelcase Furniture uses this interactive multimedia presentation and electronic catalog to present their new line of modular office furniture, "Context." It incorporates Super 3D™ models and animations.

Inigo At Home



Amanda Goodenough, AmandaStories™

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